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ABSTRACT

The first year of a project to train high school aged handicapped and/or disadvantaged youth for employment in marine and related trades was considered successful. Specific areas of training included motor mechanics, electrical, woodworking, refinishing, restoration, fiberglass work, and blueprint reading under the direction of skilled practitioners/instructors. The project also sought to develop related academic skills in mathematics and reading: employability skills in finding, getting, and keeping a job: and decision-making skills. Hands-on activities in real and simulated situations formed the core of the instructional process. Counseling support services were provided to facilitate placement in a marine maintenance or related job. Assessment of student progress in the first year showed that: (1) 100 percent of the students completing their program have been placed in a job or continued training/education in marine or a related field: (2) 90 percent of the students showed increased positive work attitudes: (3) 90 percent of the students showed 50 percent or better skill level increase in boat building. Recommendations for the second year of the project include the need to structure classes for the severity of handicapping conditions, varying skill level abilities, and interest of students: and the need to find or develop appropriate assessment instruments. (Author/KC)

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VOCATIONAL EXPLORATION AND SKILL BUILDING

IN MARINE AND RELATED OCCUPATIONS

FINAL REPORT

1979-1980

PREPARED BY

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PREPARED FOR

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ABSTRACT

This (1979-80) was the first operational year for the Vocational Exploration and Skill Building on Marine and Related Occupations Project funded by the Connecticut State Department of Education, Division of Vocational Education.

The Project involved training high school aged handicapped and/or disadvantaged youth for employment in marine and related trades. Specific areas of training included motor mechanics, electrical, woodworking, refinishing, restoration, fiberglas work, and blueprint reading under the direction of skilled practitioners/instructors. The project also sought to develop related academic skills in mathematics and reading; employability skills in finding, getting and keeping a job; and decision-making skills. Hands-on activities in real and simulated situations formed the core of the instructional process. Counseling support services were provided to facilitate placement in a marine maintenance (or a related) job.

Assessment of student progress in this first year showed that:

1. 100% of the students completing their program have been placed in a job or continued training/education in marine or a related field.
2. 90% of the students showed increased positive work attitudes.
3. 90% of the students showed 50% or better skill level increase in boat building.

Recommendations for the second operational year reflect the need to structure classes for the severity of handicapping conditions, varying skill level abilities, and interests of students. Also, the need exists to identify or develop appropriate assessment instruments.

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SECTION I - INTRODUCTION

Statement of Problem

The greater New Haven area has always provided employment opportunities in marine related trades. Recent experiences of ACES has verified that employers, especially marina operators have a need for skilled help year round.

Currently there is no place in the Greater New Haven Labor Market Area for clients to receive specific training in the marine maintenance field. The student must find his or her employment with the hope of receiving the necessary instruction for job maintenance.

There are an excess of 50 different concerns in the area dealing directly with marine/boat maintenance repair, storage, etc. (This does not include sales of boat or boating supplies).

The Connecticut Marine Trades Association (CMTA) is the primary association of marina operators and associated industries. In a recent meeting with Mr. Weeder of the Pace Corporation (director of CMTA), we questioned him about job opportunities in the marine industries. He indicated that skilled workers have little trouble in finding jobs. He mentioned that primarily there was a need for people capable at engine repair, boat repair, and boat restoration.

He further noted that a serious problem was that each new employee was usually sent to school for several weeks. This often raised costs of adding new employees and created barriers to expansion. Mr. Weeder said that "currently any person with the skills we discussed would not have trouble finding and keeping a job in the marine industry."

In a pilot of the marine vocational program of the spring of 1979, our program serviced 8 high school junior and senior students from the East Shore. Our instructor was able to place 6 of the students (all that were interested) in jobs for the summer of 1978. This indicated there are jobs available for the interested and skilled in the marine industry.

Contribution to Education:

Training opportunities in marine and related occupations are very limited in the Greater New Haven area, especially for women, minorities and disadvantaged. This project will provide direct training services as well as serve as a model for other areas of the state in marine occupations training.

Objectives:

1. Twenty-four (24) high school aged youth will be prepared for employment in marine or related occupations at the completion of this project.

   a. The participants will develop and demonstrate through performance , skills in motor mechanics, electrical, woodworking, refinishing, restoration, fiberglas work and blueprint reading.

   b. The participants will develop academic skills in math and reading related to the above skills (part a.) as demonstrated through performance testing.

   c. The participants will develop employability skills in finding, getting and keeping a job as demonstrated in simulations, and behavior at the training worksite.

2. The participants will develop and utilize decision making skills thru continuing their career development by participation in planned activities including vocational assessment, career exploration, and vocational counseling.

3. The participants who graduate or complete program will be employed or enter advanced training in marine and related occupations based on specific levels of skill attainment at the completion of the project.

Project Design - Overview!

The project will train high school aged youth in marine and related trades. The project will develop direct entry level skills in boat repair, maintenance and related marine trade occupations. In addition, the participants will deal with job attitudes, communications skills, computational skills, positive work habits, decision making skills and career development.

Specific skills to be covered in marine maintenance include hand and power tool operations, basic yacht carpentry, rib replacement, hull refastening, seam caulking, wood identification, high quality hull painting, bright work refinishing, marine engine maintenance and marine electronics. Training will encompass on the job training at local marinas with basic theory and operation of boat handling and maintenance as well as new boat construction.

Each participant will be informed of the occupational opportunities in marine industries and will be encouraged to develop their skills and explore a variety of speciality areas related to marine maintenance and other related fields.

SECTION II - SUMMARY

Results

A. Student Outcomes

All results are based on 25 students. This includes 13 in boat-building program and 12 in engine mechanics.

1. Objective One

80% of students both male and female will demonstrate increased skill levels of 50% by completion of course.

Strategies

A. Pre and post inventory of number of skills exhibited by students.
B. Pre and post inventory of student's level of independence in conducting skills.
C. Pre and post assessment of skill level using three pilot task assessment matrices

Instrumentation

A Instructors complete a skill and level of supervision inventory for each student quarterly. The inventory assesses if skill exists and what level of supervision is required. Supervision is rated on four point scale that range from maximum supervision to independent. A sample is included in Attachment A. Outcomes analysis is based on change from entering program to completion of year.

B. The task assessment matrix was conceptualized by staff this year in order to have a hands on assessment of skills taught in the program. The matrix has two major dimensions. The first is difficulty. Tasks range from easy to difficult. The second dimension is complexity. Handicapped students often have difficulty with tasks which require multiple steps. This dimens on is designed to measure students ability to handle complex steps. Sample matrices are included in this report as Exhibits B, in Attachment A. This year they have been piloted in the boat-building program.

The student status is documented with a two digit number. The nine cell matrix is assigned numbers as follows:

1.1	1.2	1.3
2.1	2.2	2.3
3.1	3.2	3.3

First digit is complexity.

Second digit is difficulty.

Students complete as many tasks as possible. The last task completed is the score. For example, a student completing only two tasks in horizontal directions in the fall would receive a score of 1.2. If at the end of the year a student completed all tasks, they would receive a score of 3.3. The change (pre-post) would be 2.1.

The DATA

A. Number of Skills - From skill inventory Attachment A the skills a student demonstrated in the fall and year end are assessed by instructor. The percentage change (pre-post) is recorded in table below:

Table I
PERCENTAGE INCREASE IN NUMBER OF SKILLS

	Boat-building		Engine Mechanics*		Total Program	
% Increase Pre-Post	Number of Students	Percentage of Students	Number of Students	Percentage of Students	Number of Students	Percentage of Students
0-9	0	0	1	8.3	1	4
10-19	0	0	0	0	0	0
20-29	0	0	4	33.3	4	16
30-39	1	7.7	5	41.7	6	24
40-49	1	7.7	2	16.7	3	12
50-59	3	23.1	0	0	3	12
60-69	4	30.8	0	0	4	16
70-79	3	23.1	0	0	3	12
80-89	1	7.7	0	0	1	4
90-100	0	0	0	0	0	0
	13		12		25	

*The student population in the engine mechanics component started with a higher level of skills. The percentage increase does not reflect total skill level. Students in this program entered with engine mechanic skills but lacked work habits, ability to accept supervision and social skills.

B. Increased Ability to Conduct Skills Independently

Ability to conduct skill independently was assessed on a four point scale (see Attachment A) The change was assessed on a pre-post basis. The scale is completed by instructor.

Table II

Change in Level of Supervision Required for Student to Conduct Skill

Level of Supervision Required % increase pre-post	Boat-Building Number of Students	Boat-Building Percentage of students	Engine Mechanics Number of Students	Engine Mechanics Percentage of Students	Total Program Number of Students	Total Program Percentage of Students
0-9	1	7.7	1	8.3	2	8
10-19	0	0	1	8.3	1	4
20-29	1	7.7	0	0	1	4
30-39	1	7.7	0	0	1	4
40-49	0	0	3	25.0	3	12
50-59	2	15.4	4	33.3	6	24
60-69	5	38.5	1	8.3	6	24
70-79	3	23.1	2	16.7	5	20
80-89	0	0	0	0	0	0
90-100	0	0	0	0	0	0
	13		12		25	

C. Task Assessment Matrix DATA

Students are assessed in fall and June on the same tasks identified in the matrices. Students are assessed only on their ability to complete the task but does not include measures of quality and time. We plan to include these in subsequent years. Data from the assessment matrices led to the following conclusions (data available on Table form upon request). The matrices can be found on Attachment A, Exhibit B.

On Matrix I (See Attachment A, Exhibit B) 77 % of the students completed the highest task (3.3) successfully at the end of the program. 15.4% of students reached level 3.2. 7.7% of students reached level 2.2.

On Matrix II (See Attachment A, Exhibit B) 61.6% of students completed the highest task (3.3) successfully at end of program. 23.1% of students reached level 3.2. 15.4% of students reached level 3.1.

On Matrix III (See Attachment A, Exhibit B) 77% of the students completed the highest task(3.3) successfully at end of program. 15.4% of students reached level 3.2. 7.7% of students reached level 3.1.

Discussion

In the boatbuilding program, 85% of the students demonstrated over a 50% increase in number of skills. 77% of the students demonstrated over 50% increase in ability to perform tasks independently. 85% of the students demonstrated over a 50% increase in skill level utilizing task assessment matrices. Overall, over 80% of the students demonstrated over a 50% increase in skill levels. For the boat-building component, Objective #1 was achieved.

In the engine mechanics component, the results are less dramatic. In this component, the overall level of skills was high in students entering. Their major problem is attitude toward work and job holding skills. 0% of students in program demonstrated over a 50% increase in number of skills. 58.3% of students demonstrated over a 50% increase in ability to perform tasks independently. While the percentage increase is not dramatic, 91.7% of students increased already high skill levels of 20% to 50%. This increase is substantial.

For the whole program, the following statement summarizes student growth in the skill areas:

- 44% of the students demonstrated over a 50% increase in number of skills. All students increased their skills.

- 68% of the students demonstrated over a 50% increase in ability to perform tasks independently.

- 90% of the students in the boat-building demonstrated over a 50% increase in skill level utilizing three task assessment matrices

Overall, the program has significantly increased the skill levels of students enrolled in the Marine Vocational Programs.

2. Objective Two

90% of the students completing the marine trades course will demonstrate, positive work attitudes through increased skill performance, attendance records and on site evaluation.

Strategies

Through the employability skills curriculum, which uses teacher made and commercial films and activities, students will increase understanding and awareness of world of work. Students will be exposed to conditions to develop appropriate work attitudes

Instrumentation

Results of pre and post test on attitude development scales and the career maturity inventory which measures student attitudes and competencies in making realistic career choice will show post test gains.

A. The ACES Secondary Vocational Services Program use an attitude assessment instrument. This is included as Attachment A, Exhibit C. On each skill or characteristics students are rated on a four point scale indicating a range of poor to good. This is completed periodically by staff. However, for reporting purposes fall and June Evaluations are used.

B. For a standardized measure, the program also utilizes the Program for Assessing Youth Employment Skills(PAYES) developed by Educational Testing Service. There are seven measures in the PAYES battery divided into three general categories:

1. Attitude Measures
   a. Job holding skills
   b. Attitude toward supervision
   c. Self-confidence.

2. Cognitive Measures
   a. Job knowledge
   b. Job seeking skills
   c. Pratical reasoning

3. Vocational Interest Inventory

PAYES is administered orally to small groups in an informal manner. There are no norms for the test. However, the testing agency provides means for a "school based" sample and a "correctional" sample for comparison.

A summary of the PAYES can be found in Attachment A, Exhibit D.

DATA

A. Attitude survey

Data is summarized in Table III.

B. PAYES Test

Data is summarized in Table IV.

Table III

SUMMARY OF PRE-POST DATA FROM ATTITUDE INVENTORY

	Social	Attitude and Motivation	Grooming	Work Habits	Communication Skills	Motor Skills	Supervision (5 pt. scale)
Boat-building							
Pre	2.46	2.26	2.76	2.27	2.26	2.21	4
Post	3.3	2.97	3.17	3	3.13	2.98	4.33
Change	0.84	0.71	0.41	0.73	0.87	0.77	0.33
Engine Mechanics							
Pre	2.22	2.24	2.99	2.4	2.7	2.8	3.2
Post	2.90	2.95	3.00	2.87	2.78	3.5	3.6
Change	0.68	0.71	0.01	0.47	0.08	0.7	0.4
Total Program							
Pre	2.34	2.25	2.88	2.33	2.48	2.51	3.6
Post	3.10	2.96	3.08	2.93	2.91	3.24	3.96
Change	0.76	0.71	0.20	0.60	0.43	0.73	0.36

Table IV.

PAYES Measures

	Means and Scores for Program Mean		Vocational Exploration Marine (average Score)		
	School	Correctional	Pre	Post	Change
Job Holding Skills (33)*	30.14	28.84	30	31	+1
Attitude Toward Supervision (65)	46.48	47.80	35	46	+11
Self Confidence (45)	35.34	34.94	34	36	+2
Job Knowledge (30)	22.13	21.80	16	30	+4
Job Seeking Skills (17)	11.55	11.37	8	12	+4
Practical Reasoning (20)	13.21	12.10	8	10	+2

* Maximum score in parenthesis( ).

Discussion

Students in the Marine Vocational Exploration Program have made progress in attitude and motivation as measured by attitude inventory and PAYES test. Strong gains were made in social skills, attitude and motivation, and motor skills according to attitude inventory.

The PAYES test indicates a strong advance in attitude toward supervision which was a priority for the program in working with these students.

In summary, over 90% of the students have demonstrated positive work attitudes by teacher evaluation and standard tests as well as increased skill performance and improved attendance records.

Objective Three

50% of the students reaching the 50% skill increase level will be placed in marine related occupations. At this level, 25% of the students completing training will be placed in appropriate other related occupations.

Strategy

Through the use of employability skills curriculum which provide for job seeking, job getting and job keeping skills, students will seek employment in designated areas and/or be assisted in being placed by the AVS/Counseling Assessment Placement team.

Instrumention: School records.

Data: See Table V.

Discussion:

The student population in the program is younger than anticipated. More than half the class are younger than 16 years old. This year only three students of 25 will leave the program. One is graduating and has been placed in a job. Two students will transfer to state technical high schools. At this time, the remaining 22 will return to ACES for another year of instruction.

Table V

Student Status Data

1979-1980

Number of students in program	25
Number graduating and placed in job	1
Number placed in continuing education programs eg. Platt Technical, Eli Whitney.	2
Number returning to ACES Secondary Program for 1980-81. Full-time- 13, AVS - 9.	22
Number placed in part-time work regular - 3, CETA - 7.	10

Examples of work placement
Carpenter's helper, small manufacturer, Jewish Home for the Aged.

Age Distribution

Years old	14	15	16	17	18	19	20	21
Number	4	3	8	4	3	0	1	0

Summary

In the Marine Vocational Exploration Program:

Objective #1

- 68% of the students demonstrated over 50% increase in ability to perform tasks independently.

- 44% of the students demonstrated over 50% increase in number of skills.

- 90% of the students in boat-building demonstrated over a 50% increase in skill level utilizing three task assessment matrices.

Objective #2

- 90% of the students in marine vocational exploration program demonstrated increased positive work-attiudes.

Objective #3

- 100% of the students completing their program have been placed in jobs or continuing education.

B. Program Outcomes

1. Curriculum

a. Boat-building - The boat-building component has developed a curriculum based on a series of job task cards. Each card is placed on a manila file folder. The file folder contains resources for the teacher in implementing classes. These resources include materials for both the teacher and student. Most have been selected from professional journals, popular magazines and instructional materials. When the teacher begins a section of program, they duplicate the articles for student reading. Students take articles to their classroom to work on reading and vocabulary with their regular teacher.

This curriculum model provides a great deal of flexibility to the instructor to modify the program to meet student and program needs. An example of one job task card and articles are included in Attachment A, Exhibit E. This curriculum will be modified and improved in the second year.

Boatbuilding - Overview

Each group in the boatbuilding course this year focused on model building; the models the students made were small versions of the life-sized boat we have worked on as a group later in the year. They are wooden models. The purpose of approaching boatbuilding from the model is to teach the students to use hand tools properly and skillfully, to become familiar with the terminology used in boatbuilding, and to provide them with a finished product instilling a sense of pride, confidence, and accomplishment.

The second part of the boatbuilding course has been to construct a 12'9" flat bottom skiff out of marine plywood. Each student has worked on various aspects of the boat construction. They have exercised their newly learned skills with hand tools while they have worked on laying, cutting plywood, nailing and sanding. They have been able to apply their knowledge of the construction of a boat learned through the model-making to a life-sized craft.

The actual construction of the skiff has been a considerable undertaking. Because of the diversity of the students abilities and the varying degrees of interest, the project has not progressed as quickly as had been anticipated. The students attention spans are often short, making work with power tools and the more tedious tasks difficult to accomplish.

The program has been successful in the area of teaching woodworking skills to students. It has instilled a sense of workmanship and craftmanship in some students whohave never taken pride in a completed project. Students who in the Fall could not function appropriately with power tools are now capable and trustworthy with them, and even have a teaching role with other students.

b. Engine Mechanics - The engine mechanics component curriculum is an amalgamation of existing published curriculums. This is because engine mechanics curricula are plentiful and appropriate. The following curricula are integral to the program:

i.) Comprehensive Small Engine Repair
by Mid-America Vocational Curriculum Consortium

ii.) Outboard Repair
by Mid-America Vocational Curriculum Consortium

iii.) Auto Mechanics
by University of Missouri - Columbia

iv) Automotive Mechanics - New Haven Public Schools
by Fred Frese

v.) Marine Mechanics Curriculum Guide
by Norwalk Public Schools

vi.) Maintenance Manuals
by Johnson Outboards

Engine Mechanics Program - Overview

The student population in the engine mechanic program is similar to boatbuilding. Some students have shared time between the two programs. They are young and not ready to select one direction.

The course is broken down into four units: models, two cycle engines, six and eight cylinder engines and applications. The model building is an essential component in building pride, craftsmanship, and patience. The small engine unit is designed to teach basics of engine operation and skills with tools. In the small engine unit, several students completely stripped and rebuilt motorcycles.

The large engine unit focuses on assembly and disassembly of engines, troubleshooting, and more advanced tools. Finally, in the applications unit engines in boats or automobiles are serviced and maintained.

c. Related Academics

Boatbuilding

i.) reading articles from industry publications (bibliography available)

ii.) VIP Communications Curriculum - Building Trades and Industries
by Tennessee State Board of Vocational Education

iii.) Teacher's Guide - Vocational Related Training for Special Students
by Tennessee State Board of Vocational Education

Engine Mechanics

iv.) Automotive Maintenance - Reading and Language Activities
by New Jersey Division of Vocational Education

v.) Readings in the Automotive Trade
by New Jersey Division of Vocational Education

vi.) VIP Communications Curriculum for Auto Mechanics
by Tennessee State Board of Vocational Education

vii.) Auto Mechanics - Glossary of Key Words
Marine and Small Engines - Glossary of Key Words
by Vocational Reading Power

A complete annotated bibliography for both components will be included in second year final report.

2. Related Program Elements

a.) Employability Skills Curriculum - copies on file

b.) Behavioral Modification System - copies on file

Both elements were developed independent of this grant program but are essential to the operation of the total vocational program at ACES.

3. Pilot Task Assessment Matrices (see Section on Student Outcomes for description of this work and for examples.)

4. Dissemination

a.) Presentations on the program were made at:

i.) Two SERC statewide conferences
November, 1979, Amity Regional High School
March - April, 1980, Windsor Locks

ii.) Council for Exceptional Children
April, 1980, Philadelphia

iii.) Visits to CES and RESCUE to discuss program
April and June, 1980

iv.) Over 20 school districts have been visited to explain vocational program for handicapped students. These include visits to Groton and New London.

b.) Local Awareness Session
Open House at ACES Secondary Program on May 30, 1980. Representatives from twenty-six school districts attended.

UNANTICIPATED PROBLEMS

1. The program is located at 205 Skiff Street, the home of our Secondary Program. The building is the former New Haven Water Company maintenance facility. It is an ideal facility since it is an industrial building. In our original proposal, we planned to locate the program at Haven East Marina. We had to alter this plan for several reasons: (1)Travel time to the marina was 45 minutes each way. The students were in a van an hour and a half each day. This was too long. (2)The energy costs have skyrocketed. The cost of travel to and from the marina in terms of gasoline has doubled since the proposal was developed. (3) The marina is a large facility located on four acres. With handicapped students (ED/LD) the large area proved to be difficult for them to handle. Students became disruptive and hard to handle.

Our new facility has an engine shop and boat building shop. They are well equipped. Students are better behaved and spend more time in instruction as compared to classes at the marina. We still travel to the marina for selected portions of the curriculum.

2. Class size has been reduced from 7-8 to a maximum of six per class. We proposed groups that were too large to teach and manage disruptive children. In the pilot, classes of seven were unworkable. The class of six is manageable. The smaller class has almost entirely eliminated disruptive behavior. While it has reduced the potential number of students in the program, it has increased the effectiveness of the program.

3. Our original proposal was for a morning and afternoon session. The demand for places has exceeded our ability to fulfill. Our tentative plan is to add an early morning session for students to explore on a four-week cycle. Our proposed schedule:

8:45 - 10:00 AM	Exploration
10:00 - 11:30 AM	Session A
12:00 - 2:00 PM	Session B

4. We originally planned to have related math and reading from government publications. On closer examination these materials are not satisfactory. We will use articles from marine magazines for related math and reading.

5. The Motor Mechanics and Electrical Component was two months late in beginning. The delay was caused by our inability to find an instructor after an extensive search including three advertisements in newspapers and extensive correspondence within education and industry.

6. The composition of the class is different than anticipated. 100% of the students are handicapped. 50% of the students are disadvantaged. These percentages are larger than anticipated. The percentage of women in the program is less than anticipated. The instructors have visited classes and encouraged participation. A number of women have explored in the program for several weeks, but have elected not to stay. We continue to make efforts to attract interested students. At this time, three participants of twenty-four are women.

7. The assessment instruments for this program are weaker than we anticipated. Instruments available were not scoreable or were not appropriate to skills taught or were only written with no hands-on. Since all students in the program are handicapped, we did not want to rely primarily on written tests.

For these reasons, we are in the process of developing hands-on tests for the skills developed in the program.

RECOMMENDATIONS

The experience gained from this first operational year has shown that the original conceptualization of the project and the implementation design was well thought out. However, there were areas identified for which improvement was needed. The following recommendations reflect on these areas.

1. Class composition be reviewed based upon the number and severity of handicapping conditions of the students. Specifically, reduce class size to a maximum of six.

2. Classes be organized according to the abilities of the students. This recognizes the fact that students enter the program at different levels of skills development and progress at different rates.

3. Opportunities should be offered for exploratory introductory, intermediate, and advanced experiences based upon student interest.

4. Further efforts be made regarding facilities to lessen energy utilization, save time, and provide a suitable learning environment for severely emotionally disturbed students.

5. Assessment instruments appropriate to the program and the handicapping conditions of the student be found or developed.

SECTION III: PROJECT DESIGN

SUMMARY

ACES MARINE VOCATIONAL PROGRAMS

The Marine Vocational Program trains high school aged youth in marine and related trades. Students have the opportunity for vocational exploration and skill building in marine and related occupations. The program is designed to provide direct entry level skills in engine mechanics and maintenance, boat electrical systems, boat repair and maintenance, boat building, fiberglass, and painting. In addition, students will deal with job attitudes, communication skills, computational skills and positive work habits.

The Marine Vocational Program uses two approaches. Students are involved in both boat building and boat restoration and maintenance. Students explore the four instructional modules described below. Following an exploration period, students select two modules for indepth training. The program has a small teacher to student ratio (one instructor to five students). Small groups allow the instructor to work closely with students of special needs.

ACES is a regional education service agency for South Central Connecticut. ACES serves Twenty-Seven school districts. The ACES Board of Directors is composed of one member of the board of education from each of the school districts we serve. Students from many of these districts attend the marine vocational program.

FOUR INSTRUCTIONAL MODULES

A. Engine Mechanics and Restoration
   Small Engine Repair
   Engine Diagnosis
   Use of Test Instruments

B. Woodworking - Boat Building and Restoration
   Use of Hand and Power Tools
   Wood Identification and Characteristics
   Cuts and Forms Parts
   Hull Refastening
   Rib Replacement
   Boat Building
   Basic Boat Carpentry

C. Painting - Restoration - Fiberglass

Bright Work Refinishing	Caulking
Fiberglass Repair	Surface Preparation
Paint Selection	
Painting	

D. Electrical Installation and Maintenance

Boat Wiring	Engine Wiring
Engine Wiring	Repair Electrical Components
Diagnosis	

Students explore all four instructional modules and select two for in-depth exploration. In addition to the four instructional components, there are supportive modules available to all students in each of the modules.

1. Related/Situational Academics Component
   reading and mathematics in a marine vocational setting

2. Related Skills Component
   blueprint reading, seamanship, safety, navigation, boat handling, and first aid

3. Employment Component
   employability skills, training and counseling, assessment, and placement services

Enrollment: 24 students total
12 morning - session A
12 afternoon- session B

ACES does not discriminate on the basis of race, color, sex, religion, handicap or any other trait. All interested students are encouraged to apply.

Location: ACES Secondary School
Skiff Street
Hamden, CT 06517

and

Haven East Marina
Mansfield Grove Road
East Haven, CT 06512

Time: Session A - 9:00 a.m. to 11:30 a.m.
Session B - 12:00 a.m. to 2:30 p.m.

STUDENT PROFILE

The population served by the ACES Secondary Vocational Program include students who have been classified as:

1. Mentally Retarded
2. Hearing Impaired
3. Seriously Emotionally Disturbed
4. Physically Handicapped
5. Specific Learning Disabled
6. Multihandicapped.

The identification and classification of these students as to exceptionality has been determined by the referring LEA's PPT identification process.

The handicapped students disabilities range from the mild to the severe and range from 13 to 21 years of age. Currently the program is serving: 11 Mentally Retarded, 8 Hearing Impaired, 49 Seriously Emotionally Disturbed, 2 Physically Handicapped, 12 Specific Learning Disabled and 1 Multihandicapped.

During the 80-81 school year the program is projected to serve; 35 Mentally Retarded, 8 Hearing Impaired, 65 Seriously Emotionally Disturbed, 5 Physically Handicapped, 12 Specific Learning Disabled and 4 Multihandicapped.

Of the population being served 33 are female, 70 are male and 25 are either black or hispanic.

It is important to note that the student body exhibits serious handicapping conditions. Referral to ACES is made only after the school district has tried to serve the student locally through supportive services and/or special classes. In essence, these are students who cannot be provided for locally and require a comprehensive and sophisticated program. This program must capitalize on student interests and be geared for each student's academic and emotional level. Classes must remain small to insure appropriate behavioral control and to monitor individual progress. Since students in the Secondary Program often have severe emotional disturbances, this factor must be anticipated in the curriculum and behavioral management system.

Students for the Marine Vocational classes are drawn from this larger population.

PROJECT DESIGN

The program provides a plan for an exemplary vocational program in marine and related trades. The program is multi-phased with various skill levels within each phase.

The program is outlined below:

I: Career/Vocational Exploration in Marine Related Trades

Purpose: Exploration in Marine and Related Careers

Participants will spend approximately two weeks involved in each of the craft areas. During this period participants are exposed to the variety of occupations within and related to the marine industry. This includes occupations which have been identified as demonstrating the interrelationship and transferability of skills. Participant skills and interests are assessed.

II: Craft Component

Purpose: Develop entry level skills in the participants.

Four Modules: A. Restoration-Painting-Fiberglas
B. Woodworking-Boat Building
C. Motorboat Mechanics-small and large engines
D. Electrical

Within each module there is a hierarchy of skills. Each student can move through the hierachy at their own speed as their skills progress.

SPECIFIC AREAS OF SKILL DEVELOPMENT

A. Painting-Restoration
- use of hand tools
- use of power tools
- boat painting
- boat hauling
- hull maintenance and repair
- bright work refinishing
- seam caulking
- remove old paint
- fill hole, cracks, and joints with filler
- use brush or spray gun to paint
- paint mixing
- fiberglas work
- paint vessels
- hull repair-aluminum
- hull repair-fiberglas

B. Woodworking
- use of hand tools
- use of power tools
- boat building
- hull refastening
- rib replacement
- wood identification and characteristics
- basic yacht carpentry
- fabricate and intall wood framing
- boat repair
- installs preformed decks, mast, boom, ladders
- blueprint reading
- cuts and forms parts
- layout full scale boat

C. Motor Mechanics
- small engine repair-outboard
- diagnois trouble
- position engine in boat
- install fuel tank
- connects fuel, oil, and waterline to engine
- install engine controls, propeller shaft, and propeller

C. Motor Mechanics
replace parts
marine mechanics - gas and diesel (inboard)
works with test instruments
adjust carbarator and distributor

D. Electrical
marine electronics
boat wiring
starter work
blueprint reading
boat repair
diagnois troubles
works with test instruments
repair elctrical equipment
replaces faulty wiring
maintenance of wiring circuits
maintenance and repair of marine elctronics
batteries - testing, maintaining
wiring up engines - marine

TWO APPROACHES

The marine and related trades vocational program had used two approaches in the program design. These were (1) construction from scratch and (2) restoration. Based on the advise of consultants (owners of Haven East Marina) and ACES experience with two mini courses, the construction approach has been added. Students who have been through a construction approach have a better understanding of how to repair or restore a boat. This works for all four craft modules. Students in the program have the opportunity to both restore vessels and construct several vessels from plans.

It is important to emphasize the basic philosophy is hands on/on-the-job training. Trainers are both ACES staff and the marina staff in the actual "on-the-job" instruction. This combination provides the practical work setting and job experience with the role model of a successful marine industries practitioner. All student training and work in the marina is only on ACES boats.

III: Employment Component

The employment component of the program includes employability skills training and counseling, assessment, and placement services. These are provided by staff from the ACES Secondary School. These services have been developed effectively for the entire vocational program. Students in this program also receive these services. (See Attachment B for descriptions of the ACES Secondary Program and the Vocational Services Component.)

The project participants are provided a variety of supportive services as an integral part of the Marine Occupations Training Program. Each participant develops career objectives and plans with the aid of staff.

The Counseling Staff utilizes local school districts data, evaluations of marine trades instructors and student interests in assessing each participant's abilities, skills, interests, and aptitudes to determine the most appropriate job target within marine trades and related occupations. As part of the Career Counseling Service, each participant receives Employability Skills Training both individually and in groups to increase their job getting and job keeping skills. Competencies such as completing applications properly, job finding skills and interviewing techniques are taught.

The ACES Placement Staff will assist each youth in the program to obtain paid employment during and upon completion of the program in each student's speciality area. A dialogue with Connecticut Marine Trades Association, area marine operators and other related marine trades firms is maintained by the Placement Staff to assure appropriate job placements for each individual in the program.

Phase IV: Related/Situational Academics Component

An important component of the program is the related academic curriculum This curriculum emphasizes reading and mathematics in a marine vocational setting. During the curriculum development phase (summer, 1979) reading and mathematics skills have been built into the program in the specific curriculum of the four craft modules. While students receive the basics in their own academic classroom, it is important to integrate vocationally related reading and mathematics into the program so students will understand the value and importance of improving their own skills.

V. Related Skills Component

A number of additional skills have been identified as valuable for employment in the marine industry. These include: blueprint reading, seamanship, safety, navigation, boat handling, and first aide. The project develops these skills in mini-modules.

VI Credit

The project recommends that each LEA issue credit to participants of the program according to local board policy. The recommendation is based uopn identified and documented competencies gained in the program. Competencies measure both related academics and vocational skill areas. Suggested range of credits for the program is 2-3 Carnegie Units.

VII Linkages Phase

In addition to preparing students for placement in jobs, the curriculum of the Marine and Related Trades program will be linked to pre-requisites in order that students may elect to attend a technical college or other two year colleges for further training.

This linkage strategy is based on two literature searchers conducted by the ACES Educational Resources Center. They are Marine Engineering Technology (3780-144-2) and Motorboar Mechanics - Course and Curriculum Guides (#770-580-1÷).

Field Experiences:

Periodic trips are made to related business for career exploration. This year the class visited:

haven East Marina
Cerrino's Marina
Custom Yacht Inc.
DiPietro - Kay
Essex Boat Museum
Two-on-the-Water Trips

The visits allow students to observe skills they are using in class in the market place. Trips also serve as a part of the behavior modification system

Secondary Job Sites

Haven East Marina in East Haven serves as a secondary site for both the engine mechanics and woodworking program. The purpose of this block of time is to have experienced personnel where instructors do not have expertise. Two purposes are served by this involvement of marina employees: (1) on the job training for students in a real work situation and (2) continued training of staff to expand their skill and experience base .

Weekly Schedule

Each component, boat building and engine mechanics, have a morning and afternoon session. Six students are assigned to a class. The morning class is from 9:30 to 11:30 AM. The afternoon class is from 12 AM to 2 PM.

One session per week is devoted to employability skills. As a student gets ready for job placement, the frequency of employability skill sessions is increased. Field trips are scheduled once a month.

Administration and Personnel

ACES as a regional educational service center has and is operating a variety of programs and services for its member districts and the state department of education.

ACES has operated the Alternative Vocational Services Program which provides employability skills training, basic academic skills development, life skills development, career guidance and counseling, and training in office support services, horticulture-agriculture, food services, bookbinding, and health occupations. In addition, ACES has developed and implemented a comprehensive vocational assessment center, transition services and career employment experience to in-school youth in Balance-of-State Prime Sponsor towns in the ACES region, and transition services and training for out-of-school youth in the Greater New Haven Area.

ACES has developed a strong industry participation in the marine and related trades vocational program. The link is with Haven East Marina in East Haven, Ct. The owners have taken a strong interest in the students who have been part of our previous pilot programs. They have gone out of their way to accomodate and assist in the training of participants. Being independent businessmen, one reason they have agreed to continue to participate is they have seen emphasis on good work habits, productivity and practical training. The owners role-models are a valuable component to the program which cannot be recreated in a school setting. In addition, the owners of the Haven East Marina are utilized as consultants and instructors in the development of the curriculum and training of instructors.

Principal Investigator - Larry Schaefer

- Director, ACES School Service Unit
- Program Manager - ACES - 5 years.
- Developed Environmental Education Center and Summer Marine Studies into self supporting programs.
- Project director on ten state and federal grants in the last five years.
- Experienced teacher trainer.
- Assistant director YCC-IP Marine Maintenance Summer Work Experience.
- Curriculum developer - developed six curriculums for ACES including both print and media formals.
- Ph.D. Yale University of Environmental Studies (full resume available on request).

Assistant Project Director - Diane Sinni

ACES Vocational Coordinator - 3 yrs.

Developed and implemented vocational training programs

Successful teaching experience with special needs students in vocational settings.

Development of curriculum and evaluation procedures in the training site areas and employability skills.

Marine Vocational Instructor - Al Mortali

Woodworking Instructor at ACES 2 years
Degree in design
1967 - General Electric Design Award
Constructed replica of first wooden submarine
Boatbuilder
Responsibility - of preparing blueprints

Automotive Instructor - Fred Frese

Auto Instructor At Hillhouse High School 4 years.
Certified Vocational Education- Auto - Welding
Auto Back Ground - 16 years
Responsibility- Teaching Small Engine Repair and
Outboard Motors

See Job Descriptions in Attachment C

SECTION IV - REVIEW OF THE RELATED RESEARCH FINDINGS

Research - Transferability of Skills

A major concern in the development of this project is to demonstrate that the marine theme has two goals, (1) to train students for employment in the marine industry in four major areas (painting-restoration, woodworking, mechanical, and marine electrical), and (2) to use the marine theme to motivate the students in the program. Using the Guidance Information System (GIS) computer program developed by Houghtoq-Mifflin, four occupations students in our program would quailfy for were identified. The occupations are: (1) boat-builder, wood, (2) mechanic, motorboat, (3) electrician, (4) painter, transportation equipment.

Using the GIS program, the requirements and job descriptions for each occupation were obtained. (See Attachment D). Based on these four occupations, common interests and aptitudes required for these occupations were identified. (See Attachment D) lists common interests and aptitudes.

Again, using the GIS computer program the interests and aptitudes were entered into the computer to determine what other occupations had similar aptitudes and interests. Based on this analysis 34 occupations in the construction cluster qualified, and 97 occupations in the manufacturing cluster qualified. In addition, there are numerous occupations that are not listed in the GIS program but are listed in the Department of Labor Dictionary of Occupational Titles. Examples of the transferability of skills in the construction and transportation cluster are listed in Attachment D.

In summary, students will receive their primary training in marine vocations and every effort will be made to place students in similar jobs. However it is important to realize that the interests, skills, and aptitudes from the primary training area are transferable to many other occupations. Students who cannot be placed in the marine industry or are not interested in pursuing marine vocations will have skills appropriate for over 150 occupations.

Research: Job Availability or Employment Potential

Using the GIS computer program updated in 1978 and based on Department of Labor statistics, data was collected on employment potential through 1985 .

The results were:

Primary Job Training Area

increasing	stable	decreasing
boatbuilder, wood	——————→	electrician
mechanic, motorboat		
painter, transportation equipment		

Occupations Directly Related

increasing	stable	decreasing
shipwright	shipfitter	carpenter
machinist, marine engine	painter	carpenter, maintenance
mechanic, maintenance	mechanic, diesel	
engineer, marine		

Based on Department of Labor statistics for Connecticut, data indicate that there will be employment potential for students graduating from the marine and related trades program. Furthermore, if one was to include our neighboring states, all the occupations listed above would have increasing employment potential.

This data has been confirmed from three additional, separate data sources.

Project Waterline - Marine Career Outlook

Catalogue # AD-CI-XX-02 - ACES

Career Education Service Center

Maine's Marine Industries - Vocational Education

Planning Guide by Darling and Griffin

Maine Bureau of Vocational Education

Maine Sea Grant Bulletin No. 7

Manpower Projections for Marine Industries

Olympus Research Corporation for Virginia Institute of Marine Science

Research: Existing Programs

In preparation for this proposal, an extensive search of the literature was made to identify similar programs in existence and also to locate suitable curriculum materials for the program.

A search of the ERIC (Educational documents) and AIM/ARM (Vocational Data Base) Systems were conducted, (search #790-520-1+). In addition, a search was made of the NTIS system. There were no positive results. Furthermore, contact was made with the R.I. Coastal Information Center. This center houses the National Sea Grant Library. Sue Brownell, assistant librarian, identified a series of programs in other parts of the country. The result described below are a result of the research effort.

There are a number of curriculum and program materials for small motor or outboard engine repair. The Norwalk curriculum are utilized but supplemented with materials from Texas and South Carolina programs. For large engine and diesel maintenance, the Navy program usedto train their personnel (ED 118915) is utilized. The performance objectives for marine mechanics from Jacksonville, Florida (ED 139960) were extremely useful in developing the heirarchy of skills.

The safety curriculum is an adaption of the Coast Guard program (ED 102370). The small craft operation and navigation program was adapted from Louisiana Vocational Curriculum Development Program (ED 013950 and 953).

The materials in woodworking, painting - restoration, and electrical were either not appropriate or not developed. The search continues for appropriate instructional materials in these areas. For the interim, manufacturers manuals are the primary curriculum. In addition, there are numerous books on each area for the instructors, but they are not appropriate curriculum materials.

For the related/situational academics, the research has identified materials developed by the Navy for improving reading and math in their maintenance personnel (ED 118915). The materials are excellent and were integrated into the program.

Finally, the researchers are aware of the program at the Essex Technical School. The ACES project has chosen a different developmental program because of the target population of students. The approach described is more appropriate for the socio-economically and academically disadvantaged as well as students with other handicaps. Contacts have been made with R.I. School of Electronics, Clatskop Community College, and Miami Dade Community College to discuss their experience in related programs. They have confirmed the research that there are a limited number of programs at the secondary level.

Research- Previous Experience

ACES has conducted two previous programs in the marine vocations. The first was a mini-course exploration unit for the ACES East Shore Career Education Center. During this course students attended two 3 hour sessions each week for twelve weeks. The mini-course concentrated on woodworking and restoration-painting.

During the summer of 1978, a second program was conducted for the Department of Labor under the CETA YCC-IP. Twelve students attended the program for twelve weeks. The student population included 6 women . Students attended the program six hours a day four days a week.

The outcomes from these programs were integral to our planning to implement this Marine Trades program. The results indicated the following:

a. The need for large blocks of planning and preparation time for the instructor.
b. The need to train instructors further in specific applications in the marine field.
c. The need for curriculum development to develop skill ladders in each module area.
d. The value of the construction approach to developing the ability of a student to repair a vessel.
e. The power of the marine trades vocational program to motivate students and provide a medium for effective skill development.

In addition, ACES has had extensive experience in operating a multiple option, multiple skill ladder program This program is the Alternative Vocational Services (AVS) program. The AVS program has options in office services, food services, book-binding, building maintenance, and horticulture. The program operates for a half-day five days a week. Demand for positions in the program exceeds available openings.

SECTION SIX - ADVISORY COMMITTEE

Purpose

The purpose of the advisory committee for the Marine and Related Occupations Project is to develop a communication channel through which project personnel will receive advice and support for project activities and outcomes through community and professional representation.

The committee's function is to assist in providing education that will be of value to students upon their entry into adult society and world of work. The primary purpose is to advise - the committee shall have no administrative or legislative responsibilities.

Advisory Committee Goals

1. To review project goals, objectives and activities within the scope of the proposal.
2. To support the project goals and objectives and personnel.
3. To sell the project activities and desired outcomes to community, business and educational concerns.
4. To recommend ideas and strategies to meet desired outcomes.
5. To assist in evaluating the project.

Committee Composition

The funded project has an advisory committee comprised of 5 to 7 members established by the Project Director. This advisory committee works directly with the Project Director in its advisory and supportive role. The committee has the following representation:

Committee composition (continued)

(1) Person representing sex - equity concerns for the project.

(1) person representing community interests.

(1) person representing the State Department of Education.

(1) person representing an ethnic minority group.

Two-thirds of the committee members are gathered from outside the educational community:

(1) person representing parent group.

(1) student

Within the committee representation, each delineated member above may not be used more than once to satisfy another representation category.

The committee serves the purpose of maintaining a close working relationship among education, industry, business, labor and other community/social service agencies.

Committee Functions

The committee elects a chairperson and establishes its responsibilities within the following functional areas with the Project Director.

1. Public Relations
2. Promotion of the Project Activities
3. Project Problems
4. On-Site Visitations
5. Meetings/Communication Activities
6. Professional Development
7. Program Evaluation
8. Curriculum content advisement.

Committee Function (continued)

9. Equipment, facilities and instructional resources.

10. Career guidance and placement service.

Time Frame

The advisory committee will exist for the duration of the contracted project during the 1980-1981 funding year. The committee is required to hold at least (3) meetings with the Project Director during the course of the project. These required meetings will take place according to the following schedule:

1st - within the first two months of the contracted project starting date.

2nd - within the month of January, 1981.

3rd - within the last month of the project's duration.

The project will provide three sessions of training on how to be an effective advisor. The training aspects will assist advisors in understanding the legislative basis for their appointments, offer organizational suggestions, initiate planning tools and usage and creative problem solving techniques.

Attachment A

applicant is able to perform the following ... Supervision ... Exhibit A
...ls according to the level of supervision checked.

	INDEPENDENT	SEMI-INDEPENDENT	SUPERVISION MODERATE	SUPERVISION MAXIMUM	NOT APPROPRIATE
Hand Tools.					
hammer & nails					
use of glue					
hand saw					
block plane					
surform plane					
comb. square.					
bevel square.					
level					
clamps C type					
hand sanding					
Pipe Clamps?					
Mallet & Chisels					
Wood fill					
painting					
varnishing					
screw driver.					
Power Tools.					
Vib. sander					
belt sander					
drill					
sabre saw					
band saw					
Table saw.					

Attachment A
Exhibit B

TASK ASSESSMENT MATRIX #1

O - September
X - June

Name_____

	Easy	Moderate	Difficult
Simple	Measure an already existing drawn straight line.	Transfer the measured to a piece of pine board.	After transferring measured line to wood cut that line as straight as possible with a hand saw.
Moderately complex	Pencil line is drawn on a 2 ft. pine board 1/8 inch from the top, lengthwise, then plane that board to the pencil line.	Repeat the same process, with a 6 ft. pine board.	Again using the same process, plane a board down on a bevel.
Complex	Measure and draw out on a picec of wood, four 12" x 12" squares.	Cut out with a hand saw the four pieces of wood.	After cutting wood, glue the edges then nail them together. Next counter-sink the nail head-fill with wood filler and sand smooth.

38

44

measurement
plane
hand saw
hammer -- sand -- wood filler

45

TASK ASSESSMENT MATRIX # II

O - September

X - June

Name_____

	Easy	Moderate	Difficult
Simple	Drill 4 holes into a piece of pine using 1/4" bit drill.	Counter sink the holes.	Attach piece to base plate using #8 wood screws.
Moderately Complex	Drill 4 holes 2" apart on center into a piece of pine using a 1/4" drill bit.	Place small amount of glue into holes. Install pre-cut wood bung into holes.	Plane down wood bung with surfoam plane until flush. Finally, hand sand until smooth.
Complex	Drill 4 holes 2" apart on center into piece of pine. Two holes 1/4" diameter and two holes 3/8" diameter.	Using 4 different size screws, select proper size bits, drill holes 2" from each corner of rectangular board, screw to base plate.	Using 4 different size screws, select proper size drill bit, drill holes 2" from each corner of rectangular board, counter sink holes, screw to base plate, add bung, make level surface.

TASK ASSESSMENT MATRIX # III

O - September
X - June

NOTE: All task assessments include getting tools and materials as well as clean up.

Name_____

	Easy	Moderate	Difficult
Simple	Hand sand rough board with minimum area 30 sq. in.	Given a rough board and a variety of sandpapers - hand sand board in preparation for painting.	Paint board (includes all prep and clean up).
Moderately Complex	Use an electric sander (pad), prepare a 30 sq. in. board for finishing.	Given a flat joint of two boards of uneven heights, an electric sander and sandpaper, prepare joint for finishing.	Given a corner joint of two uneven boards, an electric sander, sandpaper; prepare joint for finishing.
Complex	Given a variety of sandpapers, an electric sander, and a rough board, brush and paints, finish the board.	Given a flat joint of two boards, with joint separation of a 1/4", paint, brush, wood, filler, finish joint.	Given a flat joint of two boards of uneven heights, an electric belt sander, sandpaper, a brush, paints, wood filler, finish joint.

Attachment A
Exhibit C

AREA COOPERATIVE EDUCATIONAL SERVICES
800 DIXWELL AVENUE · NEW HAVEN, CONNECTICUT 06511
(203) 562 · 9967

a.c.e.s.

AREA COOPERATIVE EDUCATIONAL SERVICES

ALTERNATIVE VOCATIONAL PROGRAM EVALUATION

STUDENT_____ DATE_____

SITE SUPERVISOR_____ Absent - from_____to_____

	GOOD	SATISFACTORY	NEEDS IMPROVEMENT	POOR
1. Social Skills				
a. Gets along with co-workers				
b. Participates in group projects and activities				
c. Displays a pleasant attitude toward other people				
d. Displays everyday manners				
e. Takes pride in personal work performance				
f. Offers assistance when another worker needs help				
g. Accepts constructive criticism				

REMARKS:

_____ Friendly
_____ Passive
_____ Aggressive
_____ Talkative
_____ Moody
_____ Leader
_____ Follower
_____ Quiet
_____ Relates well to others
_____ Helpful to others

ACES is an Equal Opportunity Agency

	GOOD	SATISFACTORY	NEEDS IMPROVEMENT	POOR
2. Attitude and Motivation				
a. Positive work attitude				
b. Derives satisfaction from working				
c. Conforms to work rules				
d. Takes Vocational class seriously				
e. Self-motivated				
3. Grooming				
a. Wears appropriate clothing for job				
b. Clothing is neat and clean				
c. Personal hygiene				
4. Work Habits				
a. Follows direction given verbally				
b. Follows written directions				
c. Attentiveness				
d. Work independence				
e. Accuracy of work				
f. Consistency (maintains even pace)				
g. Follow safety rules				
h. Memory--remembers instructions and procedures				
i. Tolerance to repetitiveness				
j. Attendance				
k. Flexibility--is able to change routine				

	GOOD	SATISFACTORY	NEEDS IMPROVEMENT	POO
(Work Habits continued)				
l. Checks work and corrects own errors				
m. Remains calm and produces good quality and quantity of work when under pressure				
n. Seeks help or advice when needed				
o. Organization--follows correct steps and keeps things in order				
p. Cleans up work area when finished				
q. Decision making ability				
r. Confidence in ability to work				
s. Accepts responsibility for assigned job				
t. Works to capacity without encouragement				
6. Communication Skills				
a. Asks questions verbally				
b. Answers questions verbally				
c. Delivers oral messages accurately				
d. Explains and demonstrates to others how to perform a task				
e. Participates in class discussions				
f. Converses with peers				
g. Converses with adults				
h. Uses common social courtesies when listening or speaking				
i. Calls in when sick or not in in school				

	GOOD	SATISFACTORY	NEEDS IMPROVEMENT	POOR
Communication Skills continued)				
j. Writes simple letters or or greetings				
k. Fills out simple application forms				
l. Telephone communication				
m. Interview skills				

Motor Skills and Coordination

a. Fine manipulations				
b. Gross hand and finger manipulations				
c. Eye, hand, foot coordination				

Reaction to Supervision

_____ Requires only normal amount of supervision

_____ Requires more than normal amount of supervision

_____ Resists supervision, but is able to perform

_____ Requires emotional support from supervisor

_____ Cannot accept supervision

COMMENTS:

RECOMMENDATIONS:

PAYES

Program for Assessing Youth Employment Skills

Test measures skills for young adults

The Program for Assessing Youth Employment Skills (PAYES) is designed to assist program directors, counselors, and teachers in the guidance and counseling of persons with low verbal skills as they prepare for entry level employment. PAYES is based on extensive research in measurement by Educational Testing Service (ETS) for school dropouts, potential dropouts, and disadvantaged youth.

The battery is divided into three general categories:

(1) Attitudinal Measures
  (a) Job-Holding Skills (11 questions)
  (b) Attitude toward Supervision (13 questions)
  (c) Self-Confidence (15 questions)
(2) Cognitive Measures
  (a) Job Knowledge (30 questions)
  (b) Job-Seeking Skills (17 questions)
  (c) Practical Reasoning (Parts 1 and 2 — 20 questions)
(3) Vocational Interest Inventory

PAYES IS:

- Useful with enrollees in CETA centers, skills centers, vocational high school special needs classes, adult basic education centers, and youth in correctional institutions.
- Designed to be administered orally to small groups in an informal, relaxed manner near the beginning of your program.
- Designed so that students mark their answers directly in the testbooks.
- Scored locally for quick results.
- Designed to help counselors prepare students for employment.
- Not designed to screen students "in" or "out" of programs.

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THE BASIC SKILLS COMPANY
A Mark Systems Company
New York, NY 10016

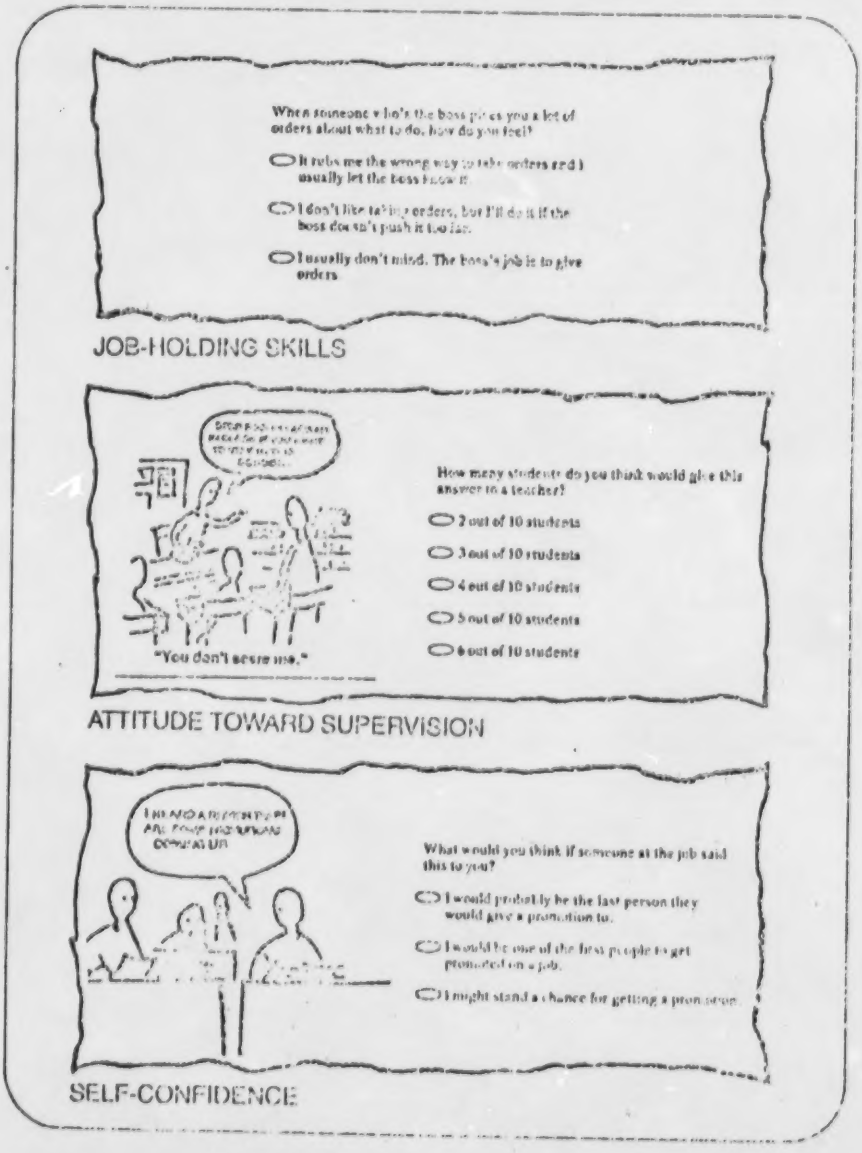
THE ATTITUDINAL MEASURES*

Job Holding Skills: This measure deals with job situations involving such things as supervisor's requests, appropriate dress, and punctuality. Respondents are asked to choose the reply that most closely reflects their reaction to each situation.

Attitude Toward Supervision: This measure presents scenes showing a person being addressed by an authority figure (for example, judge, supervisor, teacher, police officer, or parent). The person in the picture responds to the situation in a manner that is clearly either pro-authority or anti-authority. A five-point response scale allows the tester to determine the respondent's "direction of perception," a term used by psychologist H.E. Bonthrey, in relation to the scenes and responses presented in the drawings.

Self-Confidence: This measure presents scenes in which a person is participating in various school, social, and employment settings. The respondent is asked to imagine himself or herself as the youthful person in the scene and by means of a five-point response scale indicates what the outcome might be. The scenes are designed to measure a form of self-confidence as reflected in a person's feelings of competence in social and employment situations, and the ability to have a positive impact on what happens.

*Most employers or supervisors are reluctant to hire strong and free-of-risk work ethic. PAYES helps to identify these values because they determine the attitudes and behaviors that are currently associated with successful adaptation to work.


When someone who's the boss gives you a lot of orders about what to do, how do you feel?
It rubs me the wrong way to take orders and I usually let the boss know it.
I don't like taking orders, but I'll do it if the boss doesn't push it too far.
I usually don't mind. The boss's job is to give orders.
JOB-HOLDING SKILLS
"You don't scare me."
How many students do you think would give this answer to a teacher?
2 out of 10 students
3 out of 10 students
4 out of 10 students
5 out of 10 students
6 out of 10 students
ATTITUDE TOWARD SUPERVISION
What would you think if someone at the job said this to you?
I would probably be the last person they would give a promotion to.
I would be one of the first people to get promoted on a job.
I might stand a chance for getting a promotion.
SELF-CONFIDENCE

THE COGNITIVE MEASURES

Job Knowledge. Various jobs are pictured [illegible] accompanied by [illegible] covering (a) kind of [illegible], (b) education required, (c) [illegible] work performed, (d) hazards [illegible] safety, (e) aptitudes, primary tools and equipment, (f) working hours required, and (g) tools used in performing the job.

Job-Seeking Skills. The questions in this measure deal with ways of looking for jobs, some of which require interpretation of newspaper want ads and portions of job application blanks.

Practical Reasoning. The two parts of this measure deal with job related problems (i.e., direction following) tasks. The measures consist of four-choice items and are designed as follows:

Part 1. Requires the respondent in an assumed job to use a map to locate various customers.

Part 2. Presents items dealing with the respondent's skill at sorting mail in an assumed postal job, using zip code information presented in the test booklet.

VOCATIONAL INTEREST INVENTORY

For this measure, there are seven interest clusters (Aesthetic, Business, Clerical, Outdoor, Service, Science, Technical) of four items each. The respondent indicates the degree of interest in specific job tasks that are pictured and described verbally. The measure provides a profile of respondents' line of interest in each area and is designed to help in guiding students toward particular areas in their future work.

Who may order these testing materials

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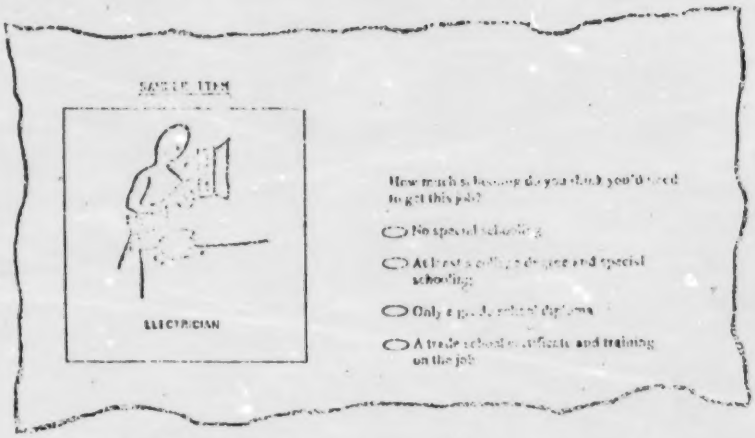
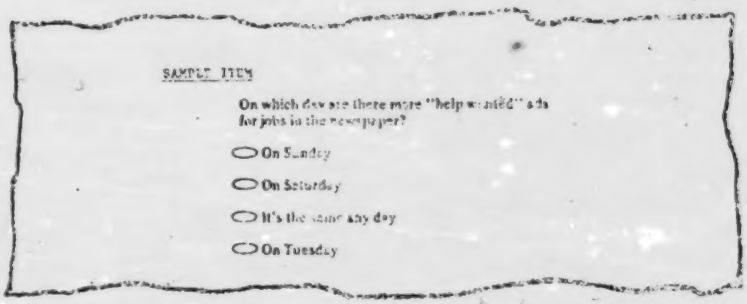
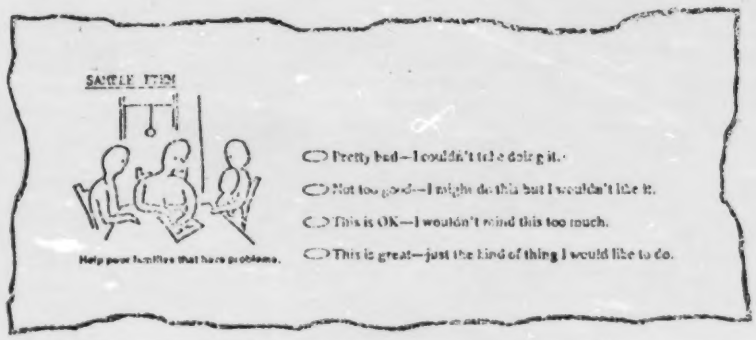

SAMPLE ITEM
ELECTRICIAN
How much schooling do you think you'd need to get this job?
No special schooling
At least a college degree and special schooling
Only a good school diploma
A trade school certificate and training on the job

JOB KNOWLEDGE


SAMPLE ITEM
On which day are there more "help wanted" ads for jobs in the newspaper?
On Sunday
On Saturday
It's the same any day
On Tuesday

JOB-SEEKING SKILLS


SAMPLE ITEM
Help poor families that have problems.
Pretty bad—I couldn't take doing it.
Not too good—I might do this but I wouldn't like it.
This is OK—I wouldn't mind this too much.
This is great—just the kind of thing I would like to do.

PRACTICAL REASONING

PAYES Test

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Or call our Customer Service Department toll free for Application for Purchase of Test.

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excluding W. Fla., La., Ala., Miss.

800-221-4754
West of Mississippi
including W. Fla., La., Ala., Miss.

In New York State
212-593-8631

Job Site : Woodworking

Al Mortali

Area: Skiff St. - Restoring 1930 Peapot Boat

Job Task	Equipment/Procedure	Vocabulary
1 Remove old paint	1 Wine brush loose paint	1 Peapod
2. Using paint stripper	2 Brush on paint stripper	2 Cedar
3. Scrapper and sander	3 Wait until it bubbles up- preceed to scrap off	3 Paint stripper
4 Replace old ribs		4 Sister Ribbing
5 Sister Ribbing new rib next to old rib	Leave old rib in and fasten new (sister) rib next to old. Using either clamps or bolts or adhesives.	

see Article I

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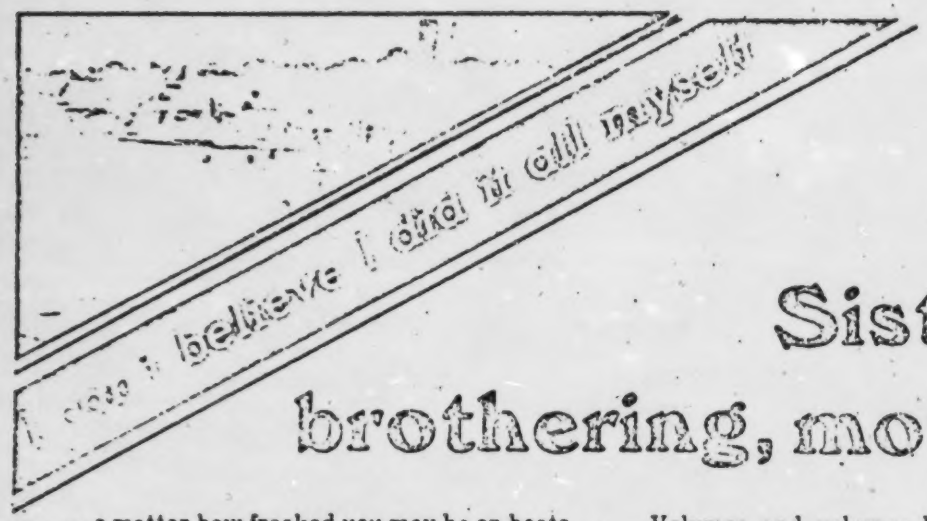
Exhibit G - pg. 1



Steve Marshall resumes the wooden boat rebuilding course

Sistering, but not as in brothering, mothering or fathering

No matter how freaked you may be on boats, or how much you want to get your ship of the line ready for sea, there is just no way that it can be pleasant working outside at the boat yard in the month of February. We'll have to assume therefore that you are reading this installment just for fun. What fun, anticipating the punishment of still more work on that old clunker. Let's talk of sistering. Before we get into the actual work involved, it is well to consider the materials and the adhesives we will be using. Lamination of wood for marine purposes, is not a new process. The problems with this method in past years came from adhesives that could not stand up for long in the hostile marine environment. The laminations would come apart. Advances in chemistry and the development of new wonder products and applications have pretty much solved this problem. But, as in most good things, there is a catch. That catch is you. Unless you handle such products correctly, and unless you have chosen the proper product in the first place, you are going to have less than perfect results.

Volumes and volumes have been written on this subject. In the complicated world of today, the time is long gone when one could open up a can of glue, slop some on two pieces of wood, let it dry, and forget it. True, you can still do this, but it is also true that if you do, you will have the bad results that have plagued boat owners in the past.

There is a little more involved than just reading the label and roughly following the instructions. You first must choose the right product and then apply it PROPERLY. Many glues will call for a temperature of say seventy degrees to set up correctly. Because of the chemical make up of the product and because the product works by going through a certain chemical reaction, you can not fudge a little and apply at fifty-five degrees and figure everything will be OK. Glues used to be like an old, ninety horse, stick shift, Chevy six. Simple, easy, and limited. Todays adhesives are more along the lines of a modern, three hundred horse, fuel injected, eight cylinder Corvette hemi. Good, fast, complicated, and temperamental.

For our purposes there are really only two kinds of adhesives to use. Resorcinal glues and epoxy glues. To my way of thinking resorcinals are inexpensive and do a very good job. Epoxies are very expensive and do a better job. Take your pick. Way back when, glues were made from such things as eggwhite, boiled bones, and the residues from milk. Today I could not even begin to pronounce the names of the chemicals that go into adhesives. And if I could I would not really know what those names meant or how they worked. But they are here, they are good, and we will use them.

We are working with wood. Oak. Oak is a close grained wood. In simple (my kind of language, the pores are smaller than in say, a wood such as pine. Pine will require more adhesive than oak because it will "drink" more. We say this to illustrate that there are other things to consider than just the glue itself. The two surfaces to be joined must FIT. They must mate as closely as

Continued on next page

58 MAKO II

NARRAGANSETT YACHTSALES 59

SISTERING

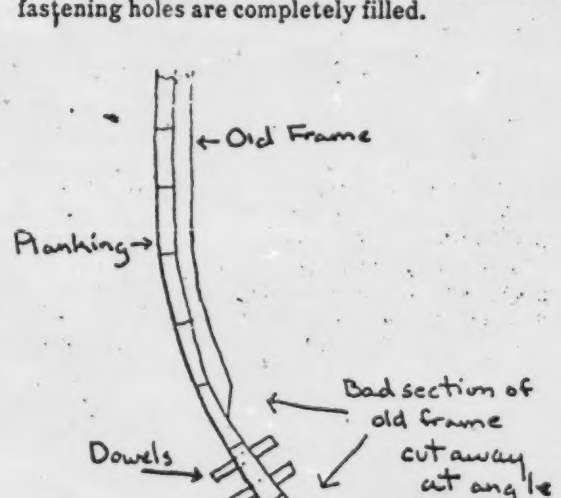
Continued from previous page

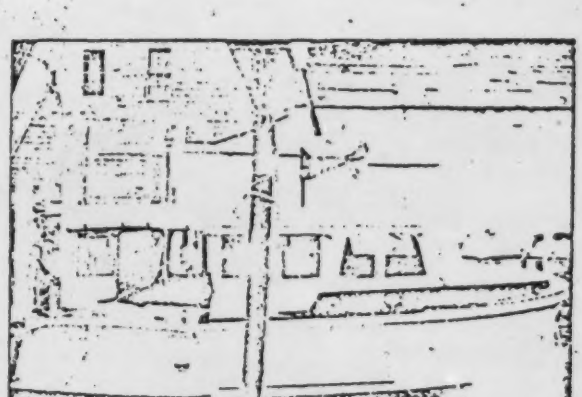
possible. The new glues are not the answer to everything. If the surfaces to be joined aren't right, then the glue won't bond right. Air pockets remain after the curing process and the bond will be weak.

Before the glue goes on make sure that the surfaces are CLEAN. You are now dealing with that Corvette engine. A little piece of dirt can foul it up. A foreign chemical in your glueing area (such as old paint, grease, etc.) can foul up the intended chemical reaction that is necessary for the glue to bond. Do your cutting and shaping carefully. Not too carefully though. Most adhesives require a little "tooth" or roughness to assist them in taking hold. In other words, the two surfaces should be cut and shaped so that they are as near a perfect mate as possible, but should not be sanded so glass smooth that there is no "tooth" for the adhesive to grab hold of.

Keep it clean, and follow the directions on the product TO THE LETTER. If the label calls for a temperature of seventy degrees, make it seventy degrees. If the outside temperature is below that, such as now, make every attempt to glue things up inside. If this is not possible than try to make the area of the glueing seventy degrees. You could try a portable heater, or a sun lamp with the area covered up with an old tarp (no fires now) or something. If you really want to do it, and do it now, you'll figure something out. If the label calls for mixing up two parts to the consistency of heavy cream (Weldwood as an example) don't stop with lumps or go too far and end up with light cream. Make it look like heavy cream. Used correctly, many of these new wonder adhesives are actually stronger than the wood itself. Used incorrectly, you are back to changing only three plugs in that Corvette, it still won't be right.

Now back to the problems at hand. We will go back a couple of months when we cut out the holes where the old fastenings went through to hold in what you cut out. I would NOT use what are known as "bungs" or "plugs" for this purpose. They are usually not long enough or strong enough. I use a piece of dowel. If your planking is say, three quarters of an inch thick cut a two inch length of dowel. Coat it with a goodly amount of wonder glue and insert in the old fastenings holes. Tap the dowels through enough so that some of the excess protrudes outside of the hull. The excess dowel both inside and outside can be cut off flush after everything has set up and cured. In this manner, you are sure that the old fastening holes are completely filled.





Chances are a sistered frame or two helps keep KILLARNEY'S topsides fai..

Now get yourself some good oak stock. Determine how long the new frame is to be, keep in mind that it should always be a bit longer than you think necessary. Now what about width? Let's say that the old frame was an inch and a half wide. If you have the room next to it why not make the sister frame one and three quarters or even two? Again, you won't harm a damn thing and you will add more strength. Using a good saw (a table saw or band saw would be nice) rip out as many strips as you will need. I would use strips one quarter or three eighths inch thick. Anything thicker becomes harder to bend to shape if you are working in an area with quite a bit of curve. Again, if the old frame was an inch thick why not go inch and a quarter? This would mean that you would need at least five strips of a quarter inch each. So rip away. We will assume that you have picked a piece of stock free of knots

Continued on next page

60 MEDICINE WARNING
This is a consumers' alert message

Bahama 30 61

SISTERING

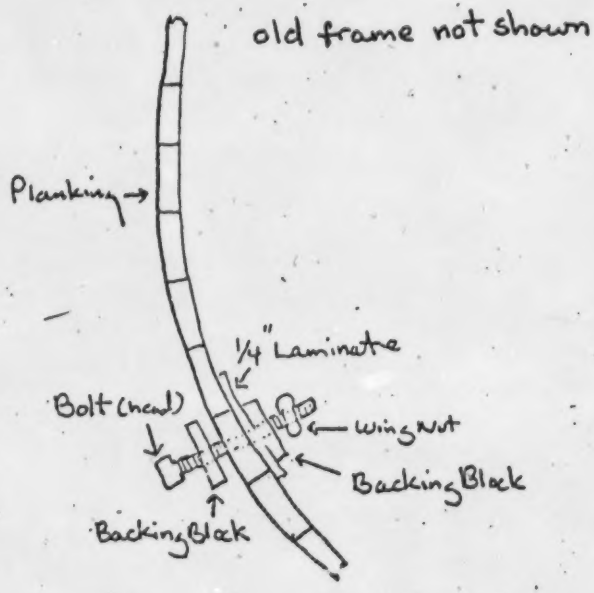
Continued from previous page

and checks. Bear in mind that you should keep the grain running the same way when you actually install the strips.

We are now at the point where we have our old holes plugged up in the area where we cut out the bad section of frame. We have cleaned out the area next to this so that the surface where the new sister frame is to go is free of all foreign matter and dirt. We have ripped out the stock for the new sister frame. We have read the label on the adhesive about seventeen times and have obtained all that we think we will need to follow directions, (heat, or whatever) and we are ready to start building. Right? Wrong.

We need a few more things to complete the job and to make our lives a little easier. Get some quarter inch stove bolts with wing nuts, long enough to go completely through the thickness of the new sister frame with a couple of inches to spare. You will need the same amount as you will need for the final fastenings. The final fastenings, I feel, should also be quarter inch nuts and bolts, only these should be silicon bronze stove bolts with washers. You should also cut out two "backing blocks" for each nut and bolt so that you won't damage the outside hull planking or the new frame. This is why you went over long on the bolts, to take up the added thickness for the backing blocks, and to give yourself a little slack while working. Try to have a helper, have your drill ready for the fastenings holes, breath deeply, and start.

Determine where the fastenings will go. They should go at the points of the most curve. Plan this out and mark on the outside hull planking where each hole will be drilled. Drill. Next drill out a hole in the center of each backing block for



the bolts to pass through. DO NOT drill holes in each of your strips. As the new frame becomes thicker with each lamination, the position of each set of holes will change slightly. If you drill them all at once they will not line up. I did not think of this the first time I sistered a rib and ended up with my two part glue all mixed up, all my holes drilled, helper standing by ego inflated because I thought I was so cool, and five ruined strips of stock. Plus some rock hard glue still in the can.

Using NO GLUE, force your first wood strip into position. Have your outside helper drill through this strip as you hold it in place. You now have your first set of holes. Now some people do not put glue on the planking so as to glue the first strip to the inside face of the planks. I do. I can't see any harm and I feel it does some good. Anyway, have your bolts with wing nut and backing blocks ready to go. Apply your glue and place your first strip into position. Don't allow any glue to get between the backing block and the first strip or you'll never get the backing block off when you start to apply your second strip. If you feel that you are like me (sloppy as hell) than put a piece of wax paper between the first strip and the inside backing block. These blocks and wing nuts must be removed after each laminate has set in order for the next strip to be installed. ALLOW THE GLUE TO SET UP BEFORE REMOVING THE BOLTS AND WING NUTS IN ORDER TO APPLY THE SECOND AND OTHER STRIPS. It will depend on the glue that you are using as to how long this will take.

Now take the second strip. Look at it and make certain that the grain is running the same way as the first. Force the second strip into a position NEXT TO the first. Bend this strip in the same manner that it will go when put into position on top of the first. The first laminate should be wide enough so that you will be able to place the second strip on one side of it, next to the bolts, so that you can measure and see where the holes should be drilled. Take care that the two strips line up in all other ways, such as top to bottom. Now drill the required holes in strip number two.

Continued on next page

SISTERING

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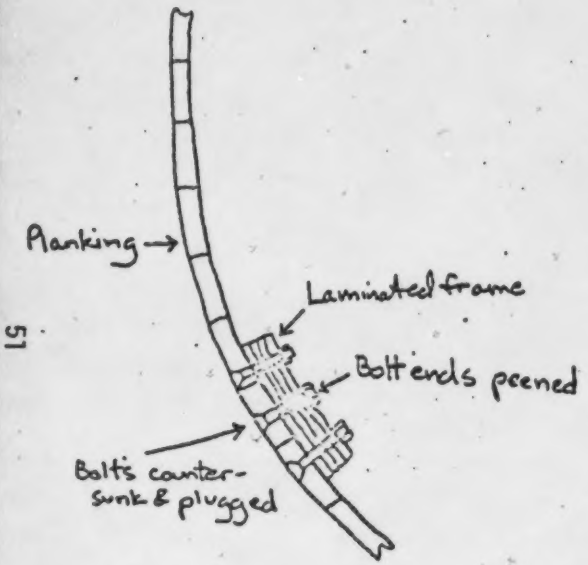
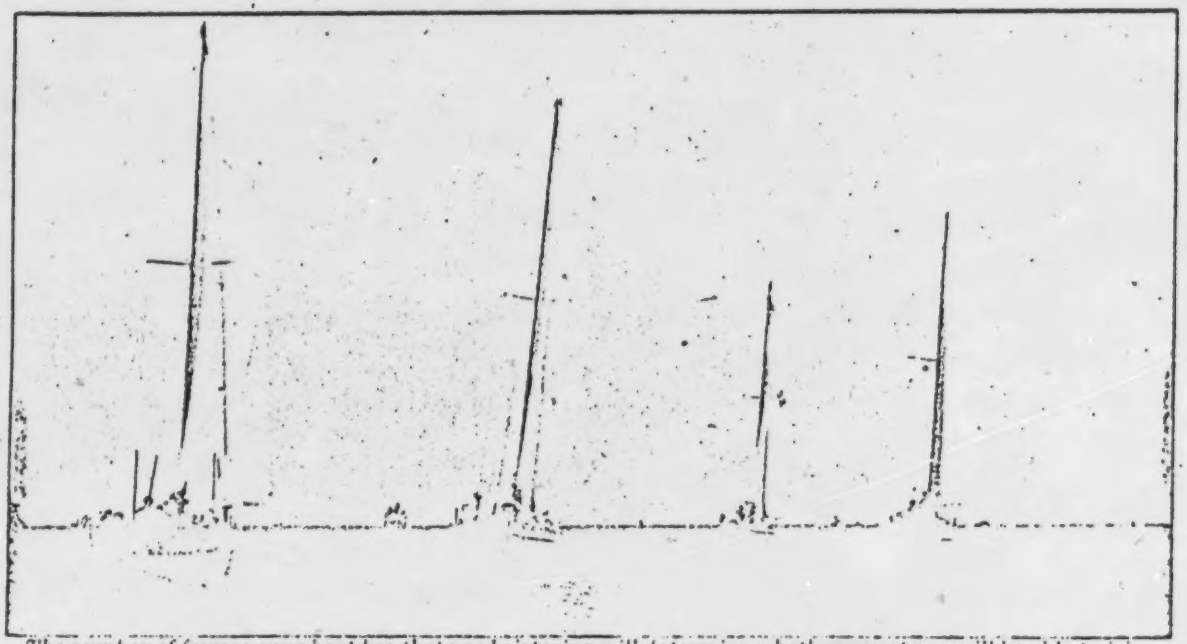
Apply your glue and install the second strip over the first. Re-insert your bolts and wing nuts and allow this strip to set up. The same holds true for the rest of how ever many strips you'll need.





The number of frames your boat has that need sistering will determine whether or not you will be able to join these fellows for the 1980 season.

After you have all needed laminates in place and the glue for the last strip has set up, remove the bolts and wing nuts for the last time. Now take the silicon bronze stove bolts and insets in your fastening holes. Before putting on the washers and nuts apply a good elastomeric sealant (Boat Life?) or a good epoxy glue around the shafts of the bronze fastenings and into any excess space around the shafts and the sides of the holes. This is to prevent any leakage around the fastening holes. Apply your washers and nuts. Tighten down securely, but not so tight so that you ring off the nuts. The final steps happen three or four weeks later. Go back then and take a couple of more turns to tighten down everything once and for all. Then take a ball peen hammer and rivet the ends of the bolts over in order to keep the nuts from ever coming loose. And there you are.

You could use an alternate method of making up the laminations by making a jig up and using a template for the shape. You could build the laminates up one by one in the jig first, since you have the template shape, and then put the whole thing in the bilge and drill your holes to install. I don't feel that it is worth it to do this, and I think you would be adding unnecessary steps and work. Doing it one by one right inside the hull is easy enough. You just can't do it right now. But to each his own. What ever method you use, the final step will be to go outside of the hull and bung up the holes where the bolt heads pass through the outside planking. I'd fill these up with glue also.

The replacement of sections of frame by lamination is not all that difficult and if done properly is a most satisfactory job. You can't help but do it right if you bear in mind the two most important things. Proper selection and use of the adhesive, and careful fitting. If your vessel has twenty or more to do we'll see you in the fall. Those of you with one or two, we'll see you soon.

NEO

+ Johnson OUTDRIVES + BOX trailer -25% = Great Savings For You

Attachment B

ACES SECONDARY PROGRAM - AN OVERVIEW

The movement towards individualization in education, learning prescriptions, functional literacy, competency testing - and Connecticut's need for cost-effective and suitable educational programming - have all led to ACES' development of alternatives in secondary education in response to requests from school districts in the Greater New Haven Area.

In the Secondary Program the students are guided through a life skills curriculum to develop consumer skills, reading and computational skills, environmental awareness, appreciation of the arts, physical education, health and recreation, and understanding of law and government, and managing personal finances and records. Career development includes vocational assessment, career guidance and vocational training. An individualized program is developed for each student. Students 13 years and older are served in ACES' classrooms in groups of nine (9) or fewer students to each professional.

A major focus of the program is on vocational training coordinated with academic development leading to a high school diploma, equivalency, or job placement. ACES' Secondary Program is designed for students who need other options for high school study. Such students as gifted/talented, handicapped, potential dropouts and homebound may be identified as appropriate for these services.

Academic and career education takes place in small classrooms, group and community settings. Vocational training occurs at actual job sites throughout Greater New Haven. Vocational programming is offered where applicable to full-time secondary students or as a half-time program for students completing their academics in their respective schools. Pre-vocational training is conducted in-house. Students learn varying levels of skills in food services, day care, exterminating, marine carpentry and maintenance, book binding, office support services, building and ground maintenance and material handling. In addition, late Fall will see the beginning of four new vocational sites: horticulture, automotive maintenance, small engine repair, vending machine repair including air conditioning, refrigeration and electrical machine tool and die operations and sub-contracted job shop operations.

A placement service seeks appropriate placement in part-time or full-time jobs for students as they master skills and are socially ready for employment.

The full range of ACES' support services is available, when necessary: occupational, physical and speech therapists, psychiatric social worker, counselors, crisis intervention specialists, counselors utilizing certified adaptive Outward Bound and Project Adventure techniques are also available. Case Conferences are utilized to make student programming decisions.

The purpose of the case conference methodology at the ACES Secondary Program is to establish integrated programming for each student within the program. Through these conferences, all school staff involved with a specific student is present in order to discuss behavior, curriculum, classes and placements. Case conferences are held weekly although individual student's case come up monthly unless there are emergency concerns. Case conferences are chaired by cluster counselors. All students in the school are assigned to one of three clusters.

All vocational planning for a student is coordinated through case conference. If staff at case conference believe a student is ready for vocational programming they recommend to the Coordinator of Vocational Services an exploration of available sites. A recommendation may include suggestion of appropriate sites.

After exploration, the vocational coordinator makes a recommendation to the case conference for placement in a vocational program. After discussion, the student is placed.

At regular meetings, students' progress is discussed. The entire staff a students sees agrees to a common approach to the student. Behavior patterns are identified and common strategies agreed to.

Finally, student progress is monitored to determine when a student is ready for job placement. If a consensus is reached that the student is ready, the student is referred to placement counselor.

In summary, the case conference is a communication system for staff concerning each student.

The number of students presently in the ACES Secondary Program is 75 full time students and 30 shared time secondary students. These students are transported from 23 towns and communities. Students range in age from 13 -21 years of age. The handicapping conditions served are: emotionally disturbed/learning disabled, educable mentally retarded, trainable mentally retarded, physically handicapped, hearing impaired and multi-handicapped. These are documented to be of moderate exceptionalities with slight variations in specific disabilities areas from severe to mild.

The setting as further developed is a non-traditional industrial facility, barrier free, with open and flex time space availability to meet the individual and changing needs of both students and specialized staff. The philosophy of needing a facility other than a traditional school building will be expounded upon in the following section of model justification.

Area Cooperative Educational Services (ACES) is one of six regional educational services centers serving Connecticut. ACES provides services for 26 towns in the Greater New Haven Area - (South Central Connecticut) and was created by the Connecticut Legislature uncer Section 10-66. Its purpose is to develop and enhance special education and supportive services to LEA's in its region. ACES has existed for ten years.

ACES VOCATIONAL SERVICES PROGRAM (A COMPONENT OF THE SECONDARY PROGRAM)

The ACES Vocational Services Program prepares secondary handicapped youth for employment. The Vocational program is a shared time program which has 3 major components: vocational training, employability skills and career counseling, and a placement service.

The vocational training phase begins with an initial exploration of various sites. At it s completion, the client selects one of several areas for training. During the exploration,students are evaluated by ACES job site supervisors on skill level, interest, attitude of work, initiative and job performance. The decision of a training site is helped along by self evaluation, counseling, decision making skills and the computerized Guidance Informational System (GIS). This system identifies common interests and aptitudes required for various occupations and also provides requirements and job descriptions for occupations. The areas of training are office support services including microfiche reproduction, food services, home health care, agrihorticulture, building and grounds maintenance, marine maintenance, automotive including electrical and small engines and day care.

The vocational training takes place at actual community job sites and some in-house at a secondary school facility. There is a trained vocational instructor with the students at all times. Students are continually evaluated on social skills, attitude and motivation, work habits, communications skills, grooming and the amount of supervision needed for the completion of job task. After several months at a primary site (on grounds) depending upon the competency of the student, he or she is moved to a secondary site. At the secondary site the student will be working with an individual employed at that particular site but with periodic ACES supervision. Therefore, a student must progress to a level of semi-independence to gain access to a secondary site.

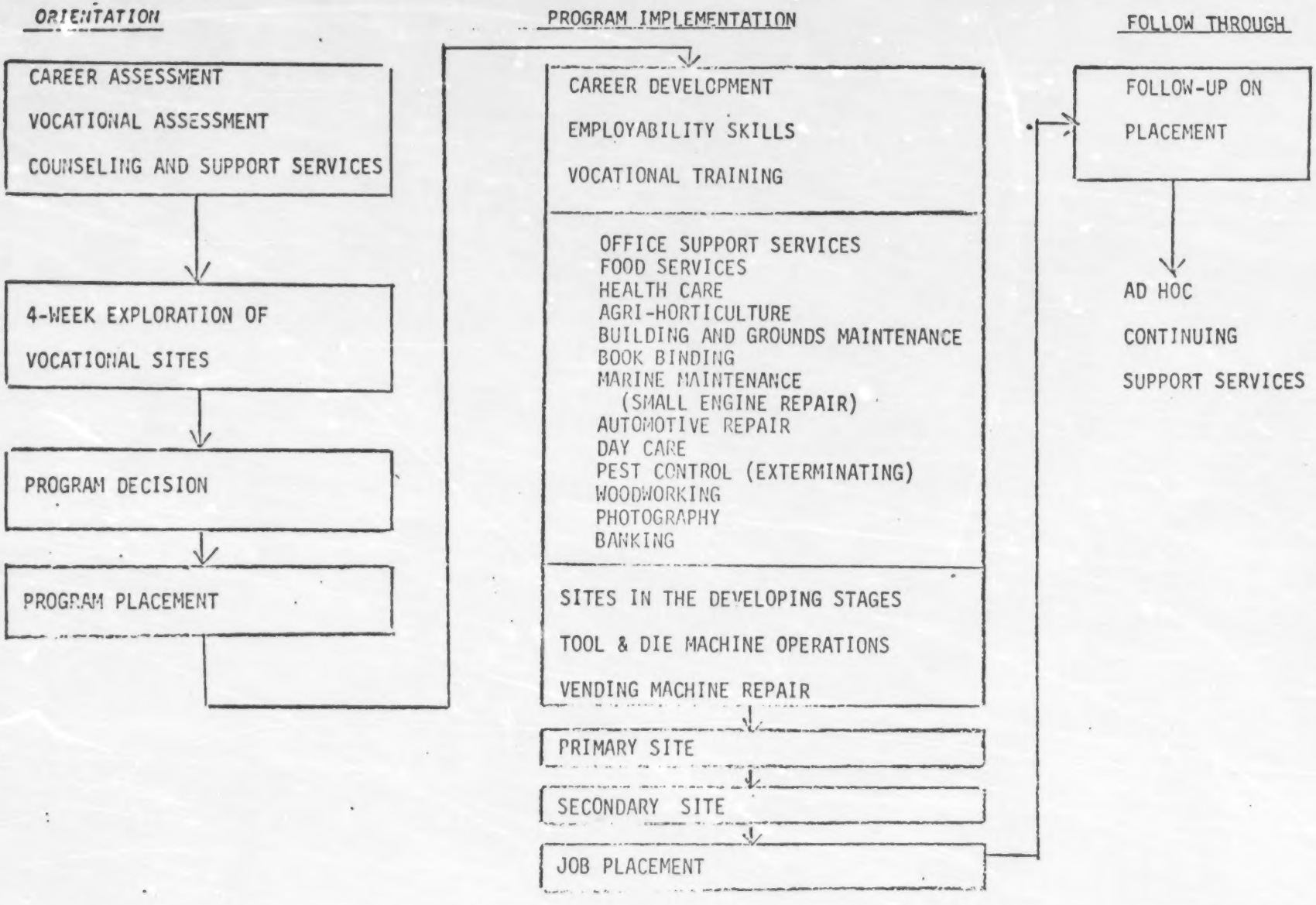
The employability skills and vocationally related academics in the training areas provides students with desirable employability and daily living skills necessary for a working environment and to provide academic exploration and development in areas of student interests and abilities. The employability skills curriculum includes job seeking getting and keeping skills, developing positive work habits and job attitudes. Emphasis is placed on social skills and personal development through the exploration of interests and careers. The curriculum also concentrates on money management, good grooming, personal hygiene and transportation. Supplementary areas deal in safety, consumerism, human relations, and use of leisure time.

Integral to the process is assisting handicapped individuals in identifying specific career fields of interest. Individuals supplement this information through research of additional occupational areas to satisfy interests or needs. The program uses various commercial and teacher made activities to reinforce the emphasis of job selection, personal requirements, interests and skills.

The third component is a placement service. The major emphasis of this service is job seeking, getting and keeping skills. Vocational training and the employability skills curriculum is the major vehicle to attain these goals. These are necessary because the terminal goal is to place well trained workers in full or part-time employment positions. A function of the placement counselor is to establish secondary job site situations based on evaluation data. In addition, the job placement counselor is responsible for both continued job site development and job placement.

After job placement is established, there is a continued followup on placement. This includes any continuing support services that may be needed by the student.

The key factors in providing an appropriate vocational program for handicapped adolescents is the development of realistic training sites that attempt to develop skills levels allowing students to ascend at their own rate of speed and potential.


ORIENTATION
CAREER ASSESSMENT
VOCATIONAL ASSESSMENT
COUNSELING AND SUPPORT SERVICES
4-WEEK EXPLORATION OF
VOCATIONAL SITES
PROGRAM DECISION
PROGRAM PLACEMENT
PROGRAM IMPLEMENTATION
CAREER DEVELOPMENT
EMPLOYABILITY SKILLS
VOCATIONAL TRAINING
OFFICE SUPPORT SERVICES
FOOD SERVICES
HEALTH CARE
AGRI-HORTICULTURE
BUILDING AND GROUNDS MAINTENANCE
BOOK BINDING
MARINE MAINTENANCE
(SMALL ENGINE REPAIR)
AUTOMOTIVE REPAIR
DAY CARE
PEST CONTROL (EXTERMINATING)
WOODWORKING
PHOTOGRAPHY
BANKING
SITES IN THE DEVELOPING STAGES
TOOL & DIE MACHINE OPERATIONS
VENDING MACHINE REPAIR
PRIMARY SITE
SECONDARY SITE
JOB PLACEMENT
FOLLOW THROUGH
FOLLOW-UP ON
PLACEMENT
AD HOC
CONTINUING
SUPPORT SERVICES

Attachment C

JOB DESCRIPTION

TITLE: Marine Vocational Instructor - Building and Boat Restoration

REPORTS TO: Project Director - Marine Vocation Explorations Program

SUPERVISES: Vocational Aides
Program driver

QUALIFICATIONS: Experience in Boatbuilding and/or Boat Restoration;
Certified or eligible for certification as Vocational Instructor;
Formal training in vocation or vocational education.

Experience in Boatbuilding and Boat Restoration including:

a) fabricate, repair or modify wooden boats
b) layout full scale outline of boat on mold-loft floor
c) make template of parts
d) assemble shell of boat
e) cut and form parts
f) install preformed decking masts, booms and ladders according to blueprint
g) paint surfaces of vessels
h) remove old paint from vessel and prepare for painting
i) make fiberglas repairs
j) work from boat plans

PERFORMANCE RESPONSIBILITIES:

1. Teaches occupational skills and knowledge to provide pupils with the competence to be an economic asset to the employer.

2. Instructs pupils in citizenship, basic communication skills, and other general elements of the course of study common to all teachers, as specified in state law, administrative regulations, and procedures of the school district.

3. Develops lesson plans and organizes class time so that preparation, instruction, shop work, and clean-up activities can be accomplished within the allotted time.

4. Demonstrates occupational materials, equipment, tools, and processes using standard or teacher-prepared models, mock-ups, sketches, and other instructional aids.

5. Guides pupils in selection and performance of appropriate activities.

6. Provides individual and group instruction appropriate to the needs of the pupil(s) and the requirements of the activities being performed.

7. Instructs pupils in the appropriate safety precautions and the safe operation and use of tools, machinery, and equipment.

8. Controls the storage, maintenance and use of materials and property to prevent loss or abuse.

9. Establishes and maintains standards of pupil conduct to provide an orderly, safe, and productive environment in an activity-type classroom with many potential hazards.

10. Maintains contacts with the business community to keep informed of new innovations and job requirements which must be reflected in the curriculum in order to develop marketable skills as required by prospective employers.

11. Communicates with employers, parents, and school counselors on individual pupil progress.

12. Identifies pupil needs, and cooperates with other professional staff members in assessing and helping pupils solve health, attitude, and learning problems.

13. Provides encouragement for continuation of formal education and assistance to pupils in seeking employment on full or part time basis.

14. Participates in curriculum and other developmental programs. Attends and works with Occupational Citizens Advisory Committees in the development and implementation of specific vocational education programs. May work under modular or flexible scheduling plans.

15. Coordinates work schedules and stations with participating facilities where training is done, such as: hospitals, airports, shopping centers, and other "off campus locations."

16 Assists in district follow-up studies and evaluations of programs and graduates.

17. Evaluates each pupil's performance, knowledge, and skills in course being taught; prepares progress reports.

18. Selects and requisitions books, instructional aids, equipment, tools, materials, supplies and parts as required, working under established budget and procedures.

19. Participates cooperatively with the principal or his designee to develop the method by which he will be evaluated in conformance with district guidelines.

TERMS OF EMPLOYMENT: Twelve month year. Salary and work year to be established by the Board.

EVALUATION: Performance of this job will be evaluated in accordance with provisions of the Board's policy on Evaluation of Professional Personnel.

Approved by: _____ Date: _____

Reviewed and agreed by: _____ Date: _____
(Incumbent)

JOB DESCRIPTION

TITLE: Marine Vocational Instructor - Motor Mechanics and Engine Repair

REPORTS TO: Project Director - Marine Vocation Explorations Program

SUPERVISES: Vocational Aides
Program driver

QUALIFICATIONS: Experience in Motor Mechanics and Engine Maintenance (both small and large engine);
Certified or eligible for certification as Vocational Instructor;
Formal training in vocation or vocational education;
Experience in engine maintenance including:

a) repairs and adjusts electrical and mechanical equipment of gasoline engines - outboard or inboard
b) use of electrical testing meters as well as hand and power tools
c) determines cause of trouble and dismantles motors
d) adjusts and installs various parts and replaces faulty wiring

PERFORMANCE RESPONSIBILITIES:

1. Teaches occupational skills and knowledge to provide pupils with the competence to be an economic asset to the employer.
2. Instructs pupils in citizenship, basic communication skills, and other general elements of the course of study common to all teachers, as specified in state law, administrative regulations, and procedures of the school district.
3. Develops lesson plans and organizes class time so that preparation, instruction, shop work, and clean-up activities can be accomplished within the allotted time.
4. Demonstrates occupational materials, equipment, tools, and processes using standard or teacher-prepared models, mock-ups, sketches, and other instructional aids.
5. Guides pupils in selection and performance of appropriate activities.
6. Provides individual and group instruction appropriate to the needs of the pupil(s) and the requirements of the activities being performed.
7. Instructs pupils in the appropriate safety precautions and the safe operation and use of tools, machinery, and equipment.
8. Controls the storage, maintenance and use of materials and property to prevent loss or abuse.
9. Establishes and maintains standards of pupil conduct to provide

an orderly, safe, and productive environment in an activity-type classroom with many potential hazards.

10. Maintains contacts with the business community to keep informed of new innovations and job requirements which must be reflected in the curriculum in order to develop marketable skills as required by prospective employers.

11. Communicates with employers, parents, and school counselors on individual pupil progress.

12. Identifies pupil needs, and cooperates with other professional staff members in assessing and helping pupils solve health, attitude, and learning problems.

13. Provides encouragement for continuation of formal education and assistance to pupils in seeking employment on full or part time basis.

14. Participates in curriculum and other developmental programs. Attends and works with Occupational Citizens Advisory Committees in the development and implementation of specific vocational education programs. May work under modular or flexible scheduling plans.

15. Coordinates work schedules and stations with participating facilities where training is done, such as: marinas and other off campus locations.

16. Assists in district follow-up studies and evaluations of programs and graduates.

17. Evaluates each pupil's performance, knowledge, and skills in course being taught; prepares progress reports.

18. Selects and requisitions books, instructional aids, equipment, tools, materials, supplies and parts as required, working under established budget and procedures.

19. Participates cooperatively with the principal or his designee to develop the method by which he will be evaluated in conformance with district guidelines.

TERMS OF EMPLOYMENT: Ten month year. Salary and work year to be established by the Board.

EVALUATION: Performance of this job will be evaluated in accordance with provisions of the Board's policy on Evaluation of Professional Personnel.

Approved by:_____ Date:_____

Reviewed and agreed by:_____ Date:_____
(Incumbent)

BOATBUILDER, WOOD

EXHIBIT A

JOB DESCRIPTION:
Fabricates, repairs or modifies wooden boats, life rafts and pontoons. Lays out full-scale outline of boat on mold-loft floor. Makes templates of parts. Cuts and forms parts. Assembles shell of boat. Builds and installs structures. Installs pre-formed decking, masts, booms and ladders according to blueprints. Requires eye-hand coordination, manual dexterity, good visual, spatial and form perception and ability to follow blueprints.

High school courses should include math, woodworking and mechanical drawing. High school graduates preferred.

Through 1985, employment potential for this occupation will be limited. Best prospects will be in AL, AK, CA, CT, DE, FL, GA, HI, LA, ME, MD, MA, MS, MI, NH, NC, OK, OR, RI, SC, TN, TX, UT, WA, WV and WI.

D.O.T. No. RELATED JOBS [GIS No.]:
860.381-022 Carpenter [93]
860.381-010 Acoustical Carpenter
860.381-030 Carpenter, Bridge
860.381-034 Carpenter, Mold

FOR RELATED INFORMATION:
ASOC Occupation No. 17
Dictionary of Occupational Titles No. 860.381-018

National Association of Engine & Boat Manufacturers
P.O. Box 555 Grand Central Station
New York, NY 10017

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61
BOATBUILDER, WOOD
    1   PERSONAL CHARACTERISTICS:INTERESTS
    6     Occupation deals with machines/equipment most of the time
    7     Occupation involves working primarily with things/objects
    8     Occupation requires following specific, set routine
   12     Occupation requires evaluating and making decisions
   16   PERSONAL CHARACTERISTICS:APTITUDES REQUIRED
   18     Ability to do arithmetic quickly and accurately
   19     Ability to comprehend forms in space
   20     Ability to perceive details in objects
   21     Ability to understand verbal/tabular material
   22     Ability to make precise movements with speed
   23     Ability to manipulate small objects with fingers
   24     Ability to move hands easily/skillfully
   25     Ability to coordinate hand/foot with visual stimuli
   30   PHYSICAL DEMANDS OF THE OCCUPATION
   33     Medium: lifting up to fifty pounds
   35     Involves climbing, balancing, kneeling, stooping, crawling
   36     Involves reaching, handling, feeling
   39     Involves mostly standing
   50   OCCUPATIONAL CLUSTERS
   54     Construction
   69   OCCUPATIONAL CATEGORIES AND DIVISIONS
  145   STRUCTURAL WORK OCCUPATIONS
  151     Other construction occupations (carpentry, plumbing, etc.)
  165   EDUCATION LEVELS
  166   FORMAL EDUCATION REQUIRED/PREFERRED
  168     High school diploma
  180   ALTERNATIVE TRAINING ROUTES REQUIRED/PREFERRED
  182     Apprenticeship: 3-5 years
  190   OTHER QUALIFICATIONS REQUIRED
  194     Union membership
  210   SPECIAL EARNING CONDITIONS
  214     No salary information received
  220   EMPLOYMENT POTENTIAL
  224     Declining employment potential
  227   WORKING CONDITIONS
  230     Both inside and outside
  234     Exposure to noise and vibrations
  237     Work customarily during weekdays
  238     35-40 hour work-week normal
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Mechanic, Motorboat

JOB DESCRIPTION:
Repairs and adjusts electrical and mechanical equipment of gasoline- or diesel-powered inboard or inboard-outboard boat engines. Uses handtools, power tools and electrical testing meters. Determines causes of trouble and dismantles motors. Adjusts and installs various parts and replaces faulty wiring. Aligns engine to propeller shaft. Requires spatial and form perception, manual-finger dexterity and ability to apply craft techniques.

High school courses should include math, science and industrial arts. High school graduation not required but generally preferred.

Indications are that through 1985, employment potential for this occupation will be increasing in CA, CT, DE, FL, KY, LA, ME, MD, MN, MS, MO, NV, NY, OK, RI, SC, VA and WI.

D.O.T. No.	RELATED JOBS [GIS No.]:	
623.281-026	Machinist, Marine Engine [451]	National Association of Engine & Boat
623.281-010	Deck Engineer	Manufacturers
623.281-034	Maintenance Mechanic, Engine	P.O. Box 555, Grand Central Station
623.281-042	Outboard-Motor Mechanic	New York, NY 10017

FOR RELATED INFORMATION:
Careers: Same title
Job Lab 2.
Occupational Outlook Handbook: DOT NO. 623.281-038

180
MECHANIC, MOTORBOAT

1 PERSONAL CHARACTERISTICS:INTERESTS
6 Occupation deals with machines/equipment most of the time
7 Occupation involves working primarily with things/objects
8 Occupation requires following specific, set routine
12 Occupation requires evaluating and making decisions
16 PERSONAL CHARACTERISTICS:APTITUDES REQUIRED
18 Ability to do arithmetic quickly and accurately
19 Ability to comprehend forms in space
20 Ability to perceive details in objects
21 Ability to understand verbal/tabular material
22 Ability to make precise movements with speed
23 Ability to manipulate small objects with fingers
24 Ability to move hands easily/skillfully
25 Ability to coordinate hand/foot with visual stimuli
30 PHYSICAL DEMANDS OF THE OCCUPATION
33 Medium: lifting up to fifty pounds
35 Involves climbing, balancing, kneeling, stooping, crawling
36 Involves reaching, handling, feeling
37 Involves talking and hearing
41 Involves both standing and sitting fairly equally
50 OCCUPATIONAL CLUSTERS
65 Transportation
89 OCCUPATIONAL CATEGORIES AND DIVISIONS
122 MACHINE TRADE OCCUPATIONS
125 Mechanics and machinery repairers
165 EDUCATION LEVELS
166 FORMAL EDUCATION REQUIRED/PREFERRED
167 Less than high school diploma
168 High school diploma
180 ALTERNATIVE TRAINING ROUTES REQUIRED/PREFERRED
182 Apprenticeship: 3-5 years
200 MOST COMMONLY OCCURRING SALARY
204 $11,000-14,999
220 EMPLOYMENT POTENTIAL
224 Declining employment potential
227 WORKING CONDITIONS
230 Both inside and outside
239 35-40 hour work-week normal
240 Overtime normal
243 Frequent weekend work
246 Overtime often seasonal

PAINTER; TRANSPORTATION EQUIPMENT

EXHIBIT C

JOB DESCRIPTION:
Paints surfaces of transportation equipment. Removes old paint from vehicle. Smooths surfaces with sandpaper and steel wool. Roughens aluminum surfaces with acid solution. Masks surfaces not to be painted. Positions stencils on vehicle surface. Paints vehicles or specified portion of vehicle. Requires interest in manual work, ability to maintain rigid standards, manual dexterity and eye-hand coordination.

High school courses should include math and shop. High school graduation not required but should be helpful.

Indications are that through 1985, employment potential for this job will be increasing in AL, AZ, CT, FL, GA, IA, KY, LA, MA, MS, NE, NH, NM, OR, TX, WV and WI.

D.O.T. No. RELATED JOBS [GIS No.]:
844.364-010 Mason, Cement [462]
845.681-010 Railroad-Car Letterer
845.684-010 Car Scrubber
845.684-014 Painter Helper, Automotive

FOR RELATED INFORMATION:
Occupational Outlook Handbook: DOT NO. 845.381-014

American Trucking Associations, Inc.
1616 P Street, NW
Washington, DC 20036

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545
PAINTER, TRANSPORTATION EQUIPMENT

  1   PERSONAL CHARACTERISTICS:INTERESTS
  6     Occupation deals with machines/equipment most of the time
  7     Occupation involves working primarily with things/objects
  8     Occupation requires following specific, set routine
 12   PERSONAL CHARACTERISTICS:APTITUDES REQUIRED
 16     Ability to comprehend forms in space
 19     Ability to perceive details in objects
 20     Ability to make precise movements with speed
 22     Ability to manipulate small objects with fingers
 23     Ability to move hands easily/skillfully
 24   PHYSICAL DEMANDS OF THE OCCUPATION
 30     Medium: lifting up to fifty pounds
 33     Involves climbing, balancing, kneeling, stooping, crawling
 35     Involves reaching, handling, feeling
 36     Involves ability to see clearly
 38     Involves mostly standing
 39   OCCUPATIONAL CLUSTERS
 50     Construction
 54     Transportation
 65   OCCUPATIONAL CATEGORIES AND DIVISIONS
 69   STRUCTURAL WORK OCCUPATIONS
145     Painting, plastering, cementing and related occupations
149   EDUCATION LEVELS
165   FORMAL EDUCATION REQUIRED/PREFERRED
166     Less than high school diploma
167     High school diploma
168   ALTERNATIVE TRAINING ROUTES REQUIRED/PREFERRED
180     Apprenticeship: 3-5 years
182   OTHER QUALIFICATIONS REQUIRED
190     Union membership
194   MOST COMMONLY OCCURRING SALARY
200     $15,000-17,999
205   SPECIAL EARNING CONDITIONS
210     Earnings on a commission basis
213   EMPLOYMENT POTENTIAL
220     Declining employment potential
224   WORKING CONDITIONS
227     Mostly inside
229     Exposure to dust, dirt, odor or fumes
236     Work customarily during weekdays
237     35-40 hour work-week normal
238
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261
ELECTRICIAN

EXHIBIT D

JOB DESCRIPTION:
Plans layout, installs and repairs wiring, electrical fixtures, apparatus and control equipment. Tests continuity of circuit to insure electrical compatibility and safety of components. Observes functioning of installed equipment or system to detect hazards and a need for adjustments, relocation or replacement. Requires independent judgment, manual dexterity, eye-hand coordination and the ability to learn and apply craft techniques.

High school courses in mechanical drawing, electronics and mathematics helpful. High school diploma usually required. Apprenticeships are the recommended training route.

Generally speaking, this occupation seems to be increasing or stable in most states except AK, CA, CT, DE, LA, NH, NJ, RI, WV and WI.

D.O.T. No. RELATED JOBS [GIS No.]:
824.381-010 Servicer, Street-Light [703]
824.137-010 Electrician, Chief
824.281-010 Airport Electrician
824.281-018 Neon-Sign Servicer

International Brotherhood of Electrical Workers
1125 15th Street, NW
Washington, DC 20005

FOR RELATED INFORMATION:
ASOC Occupation No. 37,38
Careers: Electrician, Construction
Job Lab 2.
Livelyhoods: Fine Arts and Humanities
Occupational Outlook Handbook: DOT NO. 824.261-010

261
ELECTRICIAN

1 PERSONAL CHARACTERISTICS:INTERESTS
6 Occupation deals with machines/equipment most of the time
7 Occupation involves working primarily with things/objects
8 Occupation requires following specific, set routine
12 Occupation requires evaluating and making decisions
16 PERSONAL CHARACTERISTICS:APTITUDES REQUIRED
18 Ability to do arithmetic quickly and accurately
19 Ability to comprehend forms in space
20 Ability to perceive details in objects
22 Ability to make precise movements with speed
23 Ability to manipulate small objects with fingers
24 Ability to move hands easily/skillfully
25 Ability to coordinate hand/foot with visual stimuli
30 PHYSICAL DEMANDS OF THE OCCUPATION
33 Medium: lifting up to fifty pounds
35 Involves climbing, balancing, kneeling, stooping, crawling
36 Involves reaching, handling, feeling
38 Involves ability to see clearly
39 Involves mostly standing
50 OCCUPATIONAL CLUSTERS
54 Construction
60 Manufacturing
69 OCCUPATIONAL CATEGORIES AND DIVISIONS
145 STRUCTURAL WORK OCCUPATIONS
148 Electrical assembling, installing , repairing occupations
165 EDUCATION LEVELS
166 FORMAL EDUCATION REQUIRED/PREFERRED
168 High school diploma
169 Vocational/technical training: 1-2 years
180 ALTERNATIVE TRAINING ROUTES REQUIRED/PREFERRED
182 Apprenticeship: 3-5 years
190 OTHER QUALIFICATIONS REQUIRED
191 License
193 Examination
200 MOST COMMONLY OCCURRING SALARY
207 $21,000-24,999
220 EMPLOYMENT POTENTIAL
223 Stable employment potential
227 WORKING CONDITIONS
230 Both inside and outside
235 Exposure to hazardous conditions
237 Work customarily during weekdays
238 35-40 hour work-week normal
240 Overtime normal
243 Frequent weekend work
244 Frequent night work

\Occupational Information Ready

EXHIBIT E

?A6A7A8
Add 6 Occupation deals with machines/equipment most of the time
439 Occupations Qualify

Add 7 Occupation involves working primarily with things/objects
348 Occupations Qualify

Add 8 Occupation requires following specific, set routine
330 Occupations Qualify

?A19A\
A19A20A22A23A24
Add 19 Ability to comprehend forms in space
210 Occupations Qualify

Add 20 Ability to perceive details in objects
208 Occupations Qualify

Add 22 Ability to make precise movements with speed
152 Occupations Qualify

Add 23 Ability to manipulate small objects with fingers
152 Occupations Qualify

Add 24 Ability to move hands easily/skillfully

RESULTS
150 Occupations Qualify

?A54
Add 54 Construction
34 Occupations Qualify

Add 65 Transportation
25 Occupations Qualify
:HOV
Add 60 Manufacturing
97 Occupations Qualify

CONSTRUCTION CLUSTER

?LIM34P

60
BLASTER

61
BOATBUILDER, WOOD

64
BOILERMAKER I

72
BRICKLAYER, (BRICK & TILE)

73
BRICKLAYER, CONST.

84
CABLE SPLICER

93
CARPENTER

94
CARPENTER APPRENTICE

95
CARPENTER, MAINTENANCE

96
CARPET LAYER

261
ELECTRICIAN

335
FLOOR LAYER

363
GLASS SETTER (GLAZIER)

399
INSTALLER AND REPAIRER, FURNACE HOT AIR

400
INSTALLER, FURNACE

420
LATHER (CONST.)

460
MARBLE SETTER

471
MECHANIC, CONDUIT (CONST. & LT., HT., PR.)

541
PAINTER (CONST.)

545
PAINTER, TRANSPORTATION EQUIPMENT

546
PAPERHANGER

585
PIPE COVERER AND INSULATOR WORKER

586
PIPE FITTER (CONST.)

589
PLASTERER (CONST.)

590
PLASTERER, MOLDING

592
PLUMBER

673
ROOFER

704
SERVICER-AND-INSTALLER, OIL-BURNER

709
SHEET-METAL WORKER

723
SOFT-TILE SETTER

742
STONEMASON

744
STRUCTURAL-STEEL WORKER

776
TERRAZZO WORKER

789
TILE SETTER

82

TRANSPORTATION CLUSTER

10
AIRPLANE INSPECTOR

28
ASSEMBLER, AIRCRAFT, STRUCTURES AND SURFACES

44
AUTOMOBILE UPHOLSTERER

46
AVIONICS TECHNICIAN

220
DIESEL-ENGINE TESTER

273
ENGINE TESTER (AIRCRAFT-AEROSPACE MFG.)

301
ESTIMATOR, AUTOMOBILE-REPAIR-SERVICE

333
FLIGHT ENGINEER

451
MACHINIST, MARINE ENGINE

467
MECHANIC, AIRCRAFT HEAT AND VENT

468
MECHANIC, AIRCRAFT PLUMBING AND HYDRAULICS

469
MECHANIC, AIRFRAME-AND-POWER-PLANT

470
MECHANIC, AUTOMOBILE

472
MECHANIC, DIESEL

474
MECHANIC, EXPERIMENTAL II (AIRCRAFT-AEROSPACE MFG.)

475
MECHANIC, FARM-EQUIPMENT I

476
MECHANIC, FARM-MACHINERY SET-UP

480
MECHANIC, MOTORBOAT

483
MECHANIC, TRACTOR

545
PAINTER, TRANSPORTATION EQUIPMENT

643
REPAIRER, AUTOMOBILE-BODY

657
REPAIRER, MOTORCYCLE

698
SERVICER, FUEL-INJECTION

711
SHIPFITTER

712
SHIPWRIGHT